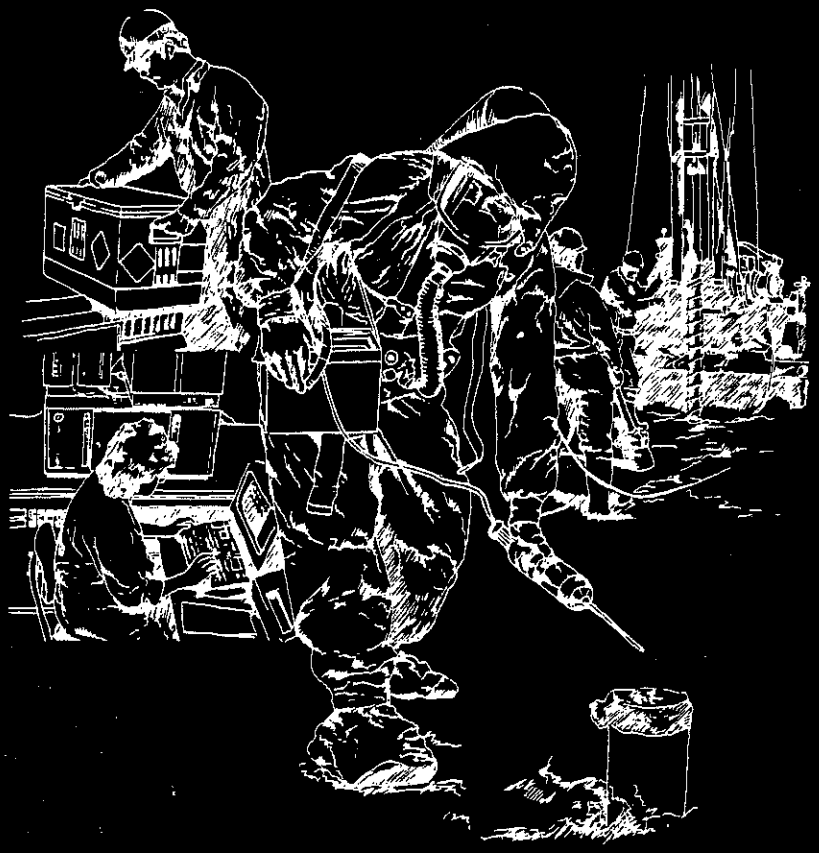
SCREENING SITE INSPECTION REPORT
FOR
GMC FISHER BODY DIV ELYRIA PLT
ELYRIA, OHIO
U.S. EPA ID: OHD004201091
SS ID: NONE
TDD: F05-9004-011
PAN: F0H0331SB

EPA

HAZARDOUS SITE EVALUATION DIVISION

Field Investigation Team Zone II



CONTRACT NO.
68-01-7347

ecology and environment, inc.

International Specialists in the Environment

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SEPTEMBER 23, 1991

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

Rec'd
11-18-91
D.T.

OCT 28 1991

GMC-Inland Fisher Guide
6600 E. 12 Mile Rd
Warren, MI 48092

REPLY TO ATTENTION OF:

5HSM-TUB-7

Re: Site Inspection Report
GMC Fisher Body Div. Elyria Plant
OHD004021041

Dear Sir:

Several months ago, a contractor for the U.S. Environmental Protection Agency (U.S. EPA), Ecology and Environment, Inc., performed a Site Inspection (SI) at your facility. U.S. EPA has completed its review of the SI report and is now forwarding this copy to you.

This SI report includes site description; sample data; topographic and site specific maps; and photographs. Unfortunately, specific recommendations and conclusions being made by this Agency are not available at this time. If you wish to secure a second opinion of our results, the quality assurance data which describes the testing procedures can be obtained from this office upon request.

This completes the SI phase of our investigation. If you have any additional information or comments, please forward them to me.

Thank you for your cooperation in this matter.

Sincerely yours,

William D. Messenger

William D. Messenger, Chief
Pre-Remedial Unit

Enclosure

SIGNATURE PAGE
FOR
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Prepared by: Robert J. Perkowski for BS Date: 10/4/91
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FIT Unit Manager
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FIT Office Manager
Ecology and Environment, Inc.

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1. INTRODUCTION

Ecology and Environment, Inc., Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the GMC Fisher Body Div Elyria Plt (GMC-FBD) site under contract number 68-01-7347.

The site was initially discovered by the Ohio Environmental Protection Agency (OEPA) Solid Waste Program on May 15, 1984, during a preliminary site inspection.

The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Catherine McCord, OEPA, Northeast District Office, and is dated March 30, 1984 (U.S. EPA 1984).

FIT prepared an SSI work plan for the GMC-FBD site under technical directive document (TDD) F05-9004-011, issued on April 16, 1990. The SSI work plan was approved by U.S. EPA on July 23, 1990. The SSI of the GMC-FBD site was conducted on September 18, 1990, under amended TDD F05-9004-011, issued on August 21, 1990.

The FIT SSI included an interview with site representatives, a reconnaissance inspection of the site, and the collection of seven soil samples.

The purposes of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for

> the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.
>
> The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI. (U.S. EPA 1988)

U.S. EPA Region V has also instructed FIT to identify sites during the SSI that may require removal action to remediate an immediate human health or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

This section presents information obtained from SSI work plan preparation, the site representative interview, and the reconnaissance inspection of the site.

2.2 SITE DESCRIPTION

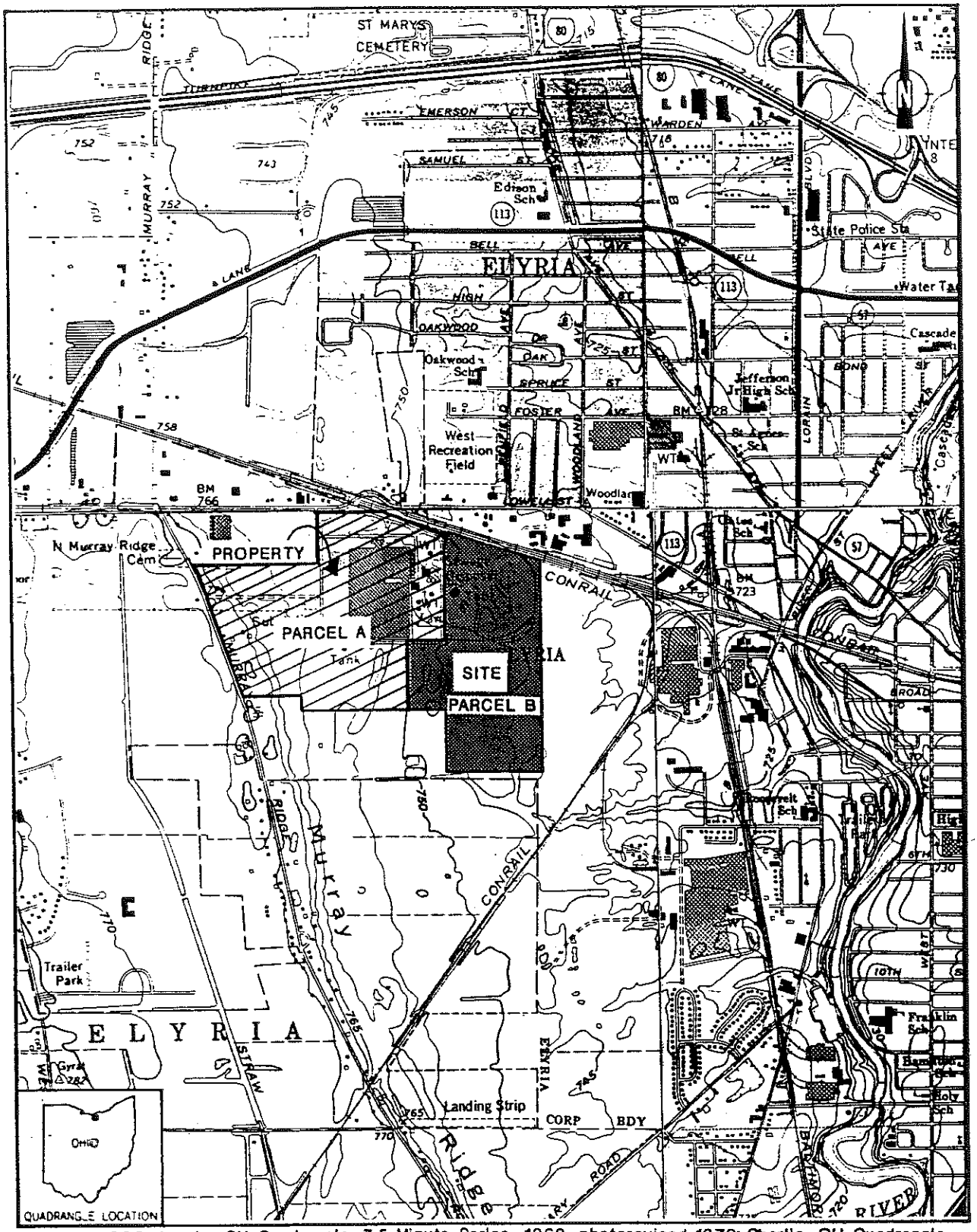
The GMC-FBD site is approximately 85 acres in size, and contains three inactive disposal areas and an engineered landfill. The site is part of a 226-acre property. The property has been divided into two parcels, A and B. Parcel B is the site; parcel A consists of the remaining 141 acres of the property (see Figure 2-1 for site location).

The site address is 1400 Lowell Street, Elyria, Ohio 44036. The GMC-FBD site is located in a rural area on the western edge of the city of Elyria, in Lorain County, along Conrail Railroad tracks, 3/4 miles west of the Black River.

A 4-mile radius map of the GMC-FBD site is provided in Appendix A.

2.3 SITE HISTORY

The GMC-FBD site is currently owned by General Motors Corporation. In 1946, General Motors built a plant on parcel A of the property, and began manufacturing parts for the automotive industry in 1952. Prior to purchase by General Motors, the site was used as a cabbage field. FIT files do not contain information concerning previous owners. In 1984, the plant was assigned to the Fisher Guide Division of General Motors.



SOURCE: USGS, Lorain, OH Quadrangle, 7.5 Minute Series, 1969, photorevised 1979; Oberlin, OH Quadrangle, 7.5 Minute Series, 1969, photorevised 1979; Avon, OH Quadrangle, 7.5 Minute Series, 1963, photorevised 1979; Grafton, OH Quadrangle, 7.5 Minute Series, 1963, photorevised 1979.

SCALE

0 ½ 1 MILE

FIGURE 2-1 SITE LOCATION

The facility closed in July 1988. Internal political problems were blamed for the closing of the plant (Kienle 1990).

In October 1989, General Motors sold parcel A to the Northern Ohio Industrial Park. The plant building is currently being used for office space. General Motors still owns parcel B, the site (Kienle 1990).

When the plant first opened, the products included auto grills, wheel covers, die casted parts, and instrument panels. Beginning in 1984, the products manufactured at the plant included seat cushions, metal seat frames, sun roof assemblies, and exterior/interior trim items. Electroplating has been a major process used in the manufacturing of many of these products. During operation, the General Motors plant employed approximately 2,080 persons as an annual average (Kienle 1990).

While in operation, four basic types of wastewater were generated at the plant: 1) acid/alkali or metal bearing wastewater; 2) chromic acid bearing wastewater; 3) cyanide based wastes and rinses; and 4) cleaner, presoak based wastes (Fisco 1970). General Motors also operated a wastewater treatment plant (WWTP) on-site to neutralize and treat any wastewater from the various plating lines at the plant. From 1956 until 1988 the water effluent from the WWTP was discharged into an Elyria city storm sewer under a National Pollution Discharge Elimination System (NPDES) permit (OEPA 1985). It is not known where wastewater effluent was discharged prior to 1956. The WWTP is located on parcel A, next to a fence between parcels A and B. The WWTP has been decontaminated and cleaned, and is currently sitting idle. The storm sewer, known as outfall 001, discharged into the Black River approximately 3/4 miles east of the GMC-FBD site. Minor NPDES permit violations were documented by OEPA and plant officials, but each was adequately corrected and no further action was necessary (Bush 1978).

The wastewater sludges that were generated at the plant have been classified as RCRA waste code F006. These electroplating treatment sludges primarily consisted of cadmium, chromium, nickel, and cyanide (U.S. EPA 1984). Prior to the 1970s, the sludges were settled out in thickening tanks and removed for off-site disposal (Fisco 1970). Beginning in the early 1970s, treatment sludges were placed into three 200 foot by 500 foot settling basins located on parcel B, the site. These

unlined surface impoundments had a total capacity of approximately 40,000 cubic yards (Mustafa 1990a).

On July 31, 1984, the plant discontinued the majority of its electroplating operations, reducing the sludge loading of the WWTP. General Motors then incorporated filter press technology for sludge dewatering, eliminating the need for surface impoundments at the site. A RCRA closure plan was submitted in 1986 for the closure of the surface impoundments. The plan was approved by OEPA on August 7, 1987. The plan suggested that the surface impoundments be closed and converted into an engineered landfill for hazardous waste, with a double, clay and synthetic liner with primary and secondary leachate treatment systems. The sludge in the surface impoundments was stabilized using cement kiln dust, excavated, and placed in the landfill, which was constructed where two of the surface impoundments had been located (Mustafa 1990a).

In anticipation of the closure of the facility, General Motors included in its 1986 closure plan the clean closure of a drum storage area and two toluene diisocyanate (TDI) treatment tanks, which were located on parcel A. The closure plan also included a required 30 years of groundwater monitoring of the hazardous waste landfill. FIT file information indicates that final postclosure certification under RCRA has not yet been granted for the landfill. OEPA will conduct post-closure inspections as required (Mustafa 1990).

At least 11 monitoring wells surround the hazardous waste landfill, many of which existed when the surface impoundments were still in use. Exact dates of all monitoring well installations are not known to FIT at this time. Nor is it known who drilled the wells.

In June 1981, General Motors filed a Notification of Hazardous Waste Site form, pursuant to section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act. The form indicated that heavy metals and bases from plating/polishing operations were disposed of in a 20-acre area on-site from 1950 to 1977 (U.S. EPA 1981). Buried drums were also indicated in the form. The 20-acre area refers to three disposal areas on-site, north and east of the engineered landfill. These disposal areas are known as A, B, and C. Unlike the engineered landfill, these disposal areas have never been regulated under RCRA (Mustafa 1990a). It does not appear that soil sampling has

ever been conducted in or around disposal areas A, B, or C prior to the SSI conducted by FIT.

Area A covers approximately 4.8 acres, and was used for the open burning of plant trash from 1947 to 1974. Area A is currently vegetated. FIT file information does not indicate what was disposed of in this area. Area B covers approximately 5.7 acres and was used for the disposal of WWTP sludges from 1956 to 1967. The estimated volume of area B is 25,000 cubic yards. This area is currently covered and vegetated. Area C covers approximately 6.5 acres and was used for the disposal of WWTP sludges from 1972 to 1977. The estimated volume of area C is 40,000 cubic yards. This area is currently vegetated (Mustafa 1990a).

Most of General Motor's closure efforts have concentrated on the monitoring of the hazardous waste landfill. It is not known what plans, if any, General Motors has for former disposal areas A, B, and C. No further remedial actions have been taken concerning the GMC-FBD site.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the GMC-FBD site. Individual subsections address the site representative interview, reconnaissance inspection, and sampling procedures. Rationales for specific FIT activities are also provided. The SSI was conducted in accordance with the U.S. EPA-approved work plan.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the GMC-FBD site is provided in Appendix B.

3.2 SITE REPRESENTATIVE INTERVIEW

Cynthia Schultz, FIT team leader, conducted an interview with Philip Kienle, Senior Environmental Engineer, General Motors, and Lowell Metzger, O.H. Materials, environmental consultants, of Findlay, Ohio. The interview took place on September 18, 1990, at 8:00 a.m. at the GMC-FBD site located at 1400 Lowell Street, Elyria, Ohio 44036. The interview was conducted to gain information concerning the site to aid FIT in conducting SSI activities.

3.3 RECONNAISSANCE INSPECTION

Following the site representative interview, FIT conducted a reconnaissance inspection of the GMC-FBD site and surrounding area in accordance with Ecology and Environment, Inc. (E & E), health and safety guidelines. The reconnaissance inspection began at 10:00 a.m., September 18, 1990, and included a walk-through of the site to determine appropriate health and safety requirements for conducting on-site

activities and to make observations to aid in characterizing the site. FIT also determined sampling locations during the reconnaissance inspection. FIT was accompanied by site representatives during the reconnaissance inspection.

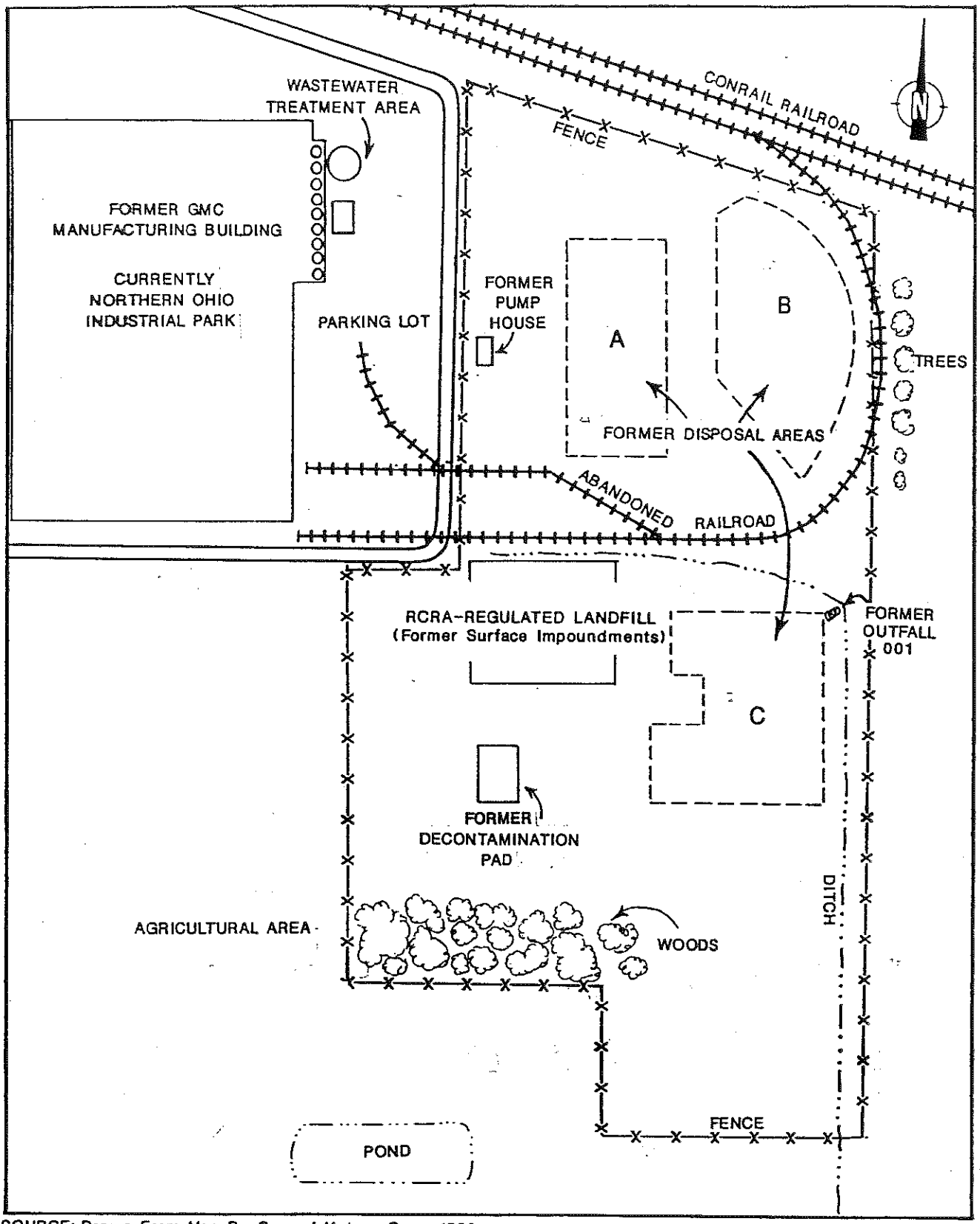
Reconnaissance Inspection Observations. The GMC-FBD site is bordered by Conrail Railroad tracks to the north, and by parcel A and agricultural land to the west (see Figure 3-1 for site features). Agricultural land borders the site to the east and south. Residential areas are located north and west of the site. Further north, approximately 1/4 mile, light industrial areas exist, as well as a school and a large recreational field. Light industrial and commercial areas are primarily located further east of the site, closer to Elyria. The Black River is located approximately 3/4 miles east of the site. The river flows to the north.

The site is completely enclosed by a 7-foot-high cyclone fence with a locked gate. An abandoned railroad spur runs south along the eastern border of the site from the Conrail Railroad tracks, then turns to the west, across the center of the site, and ends at the plant building on parcel A. Former disposal areas A and B are located north of the abandoned spur; former disposal area C and the engineered landfill are located south of the spur. The disposal areas are vegetated and blend in with the surrounding terrain. The landfill is slightly sloped. Monitoring wells surround the landfill (see Figure 3-2 for monitoring well locations).

A former pump house is located approximately 150 feet west of disposal area A. A former truck decontamination pad and woods are located south of the engineered landfill.

A ditch that serves as the Elyria storm sewer runs east from parcel A, just south of the abandoned spur, then turns to the south at the eastern fence line. Former outfall 001 leads from the northeast corner of disposal area C to the drainage ditch.

The former General Motors plant building is located on parcel A, just west of the site. The WWTP is located at the northeast corner of the building. A parking lot is located between the site fence and the plant building. Parcel A is partially fenced.

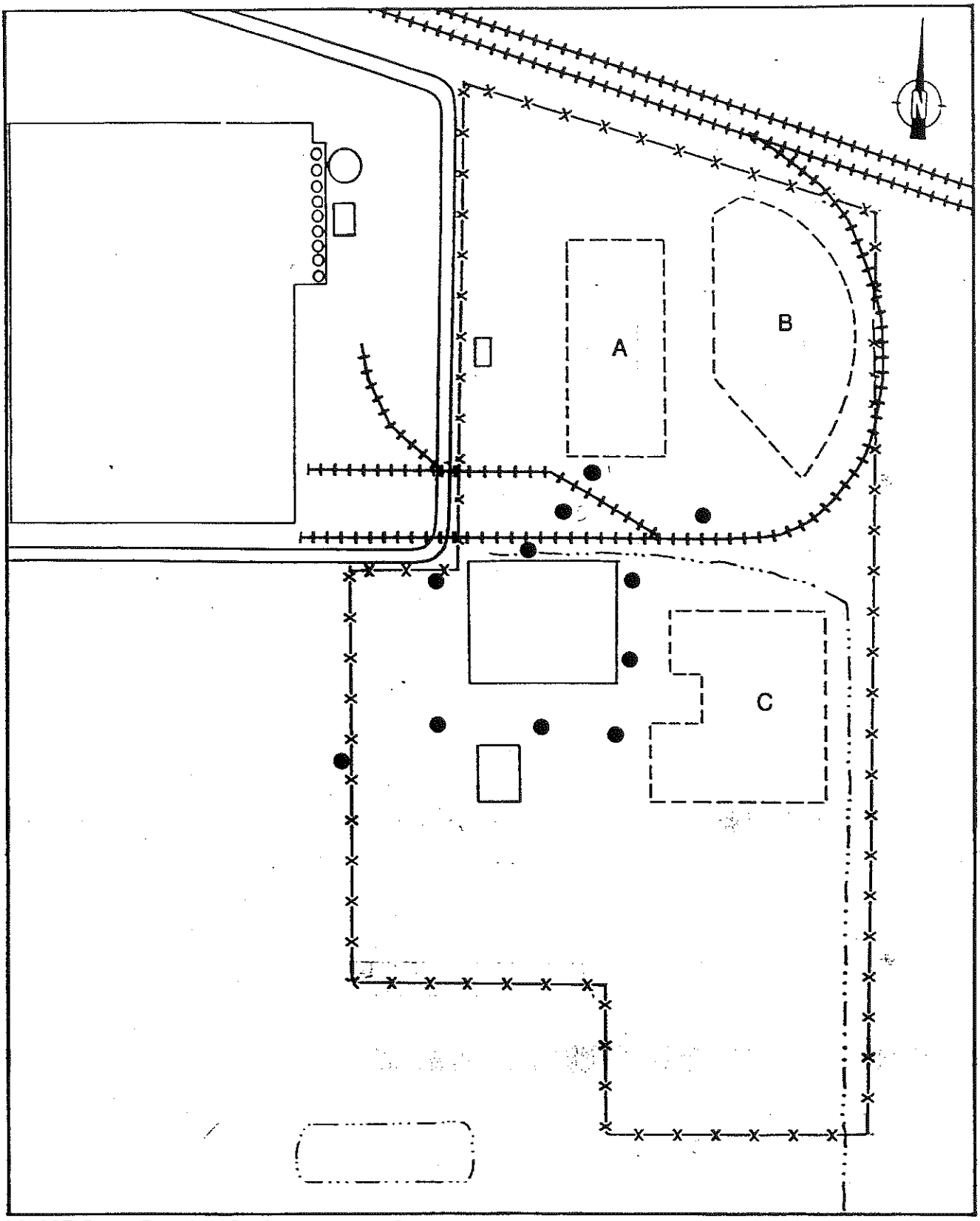


SOURCE: Drawn From Map By General Motors Corp, 1980.

SCALE

0 200 400 600 800 1,000 FEET

FIGURE 3-1 SITE FEATURES



SOURCE: Drawn From Map By General Motors Corp, 1980.

SCALE

0 200 400 600 800 1,000 FEET

FIGURE 3-2 MONITORING WELL SAMPLING LOCATIONS

FIT photographs from the SSI of the GMC-FBD site are provided in Appendix C.

3.4 SAMPLING PROCEDURES

Samples were collected by FIT at locations selected during the reconnaissance inspection to determine whether U.S. EPA Target Compound List (TCL) compounds or Target Analyte List (TAL) analytes were present at the site. The TCL and TAL are included with corresponding quantitation/detection limits in Appendix D.

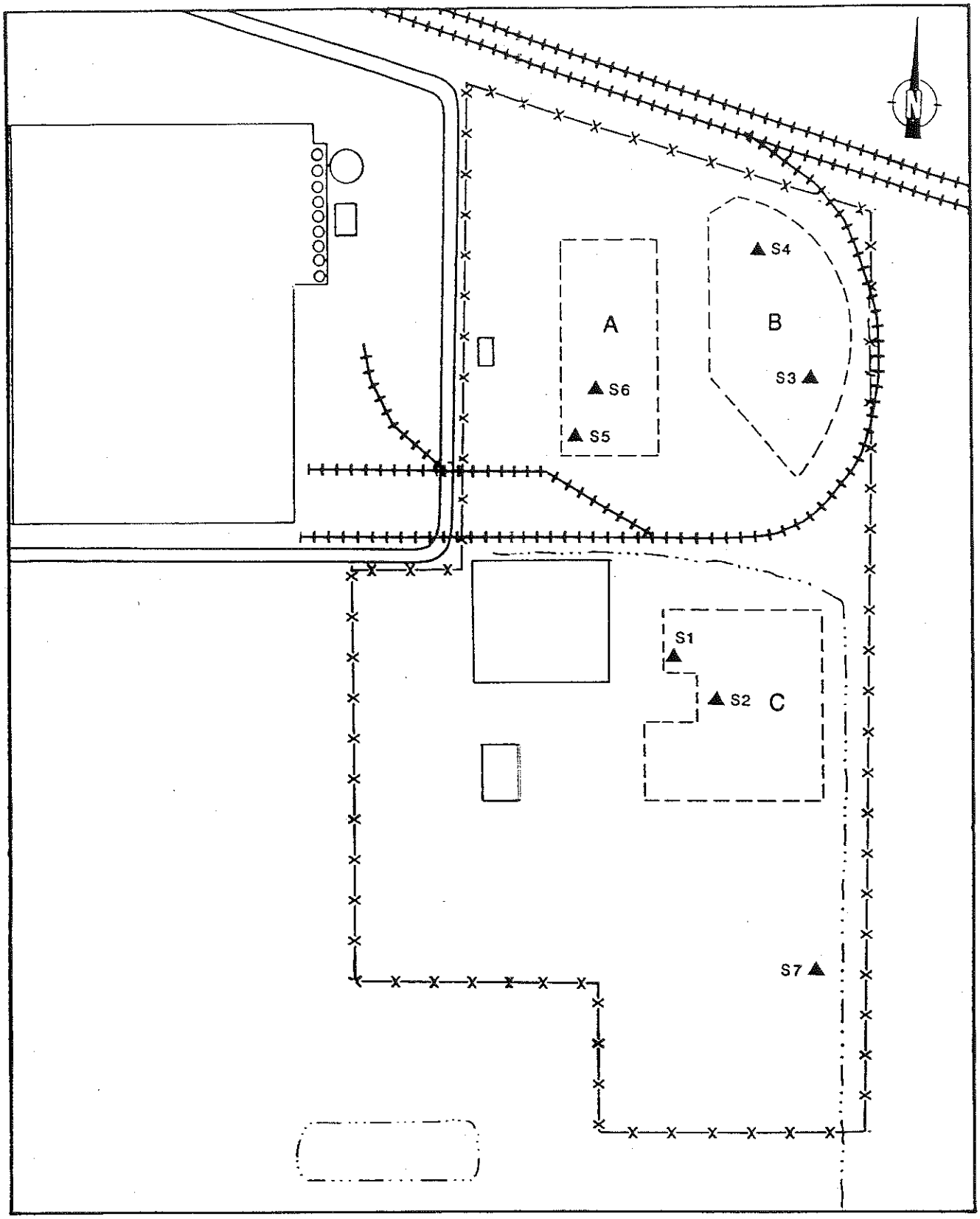
On July 18, 1990, FIT collected seven on-site soil samples from disposal areas A, B, and C, including a potential background soil sample. Portions of soil samples were offered to the site representative, and three portions, from samples S2, S3, and S5, were accepted.

Groundwater sampling was not conducted during the SSI, because groundwater flow direction in the area of the site is to the northeast. Therefore, all on-site monitoring wells, as well as all residential wells in the area of the site, are considered to be upgradient or side gradient of former disposal areas A, B, and C. Any TCL compounds and TAL analytes FIT might detect in on-site monitoring wells would likely have migrated to groundwater from the area of the former surface impoundments, where the engineered landfill is currently located. This area is upgradient of disposal areas A and B and west of disposal area C.

Soil Sampling Procedures. Two soil sampling locations were selected by FIT at random in each of the three former disposal areas, A, B, and C (see Figure 3-3 for soil sampling locations). The locations were selected to determine whether TCL compounds or TAL analytes were present on-site. These samples were all collected at depth to better characterize wastes deposited in the disposal areas.

Soil sample S1 was collected from the northwest corner of area C, at a depth of 5 feet, by using both a power auger and a hand auger. Soil sample S2 was collected with a shovel in disposal area C, southeast of sampling location S1, at a depth of 3 feet.

Soil sample S3 was collected with a shovel and a posthole digger from the southern end of disposal area B; soil sample S4 was collected with a shovel in area B, approximately 225 feet northwest of sampling



SOURCE: Drawn From Map By General Motors Corp, 1980.

SCALE

0 200 400 600 800 1,000 FEET

FIGURE 3-3 SOIL SAMPLING LOCATIONS

location S3. Samples S3 and S4 were collected at depths of 2.5 feet and 1 foot, respectively.

Soil samples S5 and S6 were collected with a shovel and posthole digger from disposal area A. The samples were collected approximately 100 feet apart from the southern end of the area, at depths of 1.5 to 2 feet.

A potential background soil sample, S7, was collected with a shovel from an area south of disposal area C. The background soil sample was collected to determine the representative content of soil in the area of the site. The sampling location was selected because it appeared to be in a relatively undisturbed area on-site.

The volatile organic analysis sample portions were collected first and transferred directly to sample bottles. All remaining sample portions were transferred to stainless steel bowls with a shovel, posthole digger, and/or hand auger. Sample material was then transferred to appropriate sample containers using stainless steel trowels (E & E 1987).

Standard E & E decontamination procedures were adhered to during the collection of all soil samples. The procedures included the scrubbing of all equipment (e.g., power auger, hand auger, posthole digger, shovel, stainless steel bowls, and trowels) with a solution of detergent (Alconox) and distilled water, and triple-rinsing the equipment with distilled water before the collection of each sample (E & E 1987). All soil samples were packaged and shipped in accordance with U.S. EPA-required procedures.

As directed by U.S. EPA, all soil samples were analyzed using the U.S. EPA Contract Laboratory Program (CLP).

4. ANALYTICAL RESULTS

This section presents results of the chemical analysis of FIT-collected on-site soil samples for TCL compounds and TAL analytes. All samples were analyzed for volatile organics, semivolatile organics, pesticides/polychlorinated biphenyls (PCBs), metals, and cyanides. Complete chemical analysis results of FIT-collected soil samples are provided in Table 4-1.

Quantitation/detection limits used in the analysis of soil samples are provided in Appendix D.

The analytical data for the chemical analysis of soil samples collected for this SSI have been reviewed by U.S. EPA for compliance with terms of CLP, and the review has been approved by U.S. EPA. The analytical data have also been reviewed by FIT for validity and usability. Any additions, deletions, or changes to the data have been incorporated in the chemical analysis results table presented in this section.

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL SAMPLES

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7
Date	9/18/90	9/18/90	9/18/90	9/18/90	9/18/90	9/18/90	9/18/90
Time	1150	1245	1355	1435	1515	1555	1630
CLP Organic Traffic Report Number	EKH56	EKH57	EKH58	EKH59	EKH60	EKH61	EKH62
CLP Inorganic Traffic Report Number	MEKS56	MEKS57	MEKS58	MEKS59	MEKS60	MEKS61	MEKS62
Compound Detected (values in µg/kg)							
Volatile Organics							
methylene chloride	—	—	—	35J	—	—	—
trichloroethene	—	—	—	—	8	1J	—
tetrachloroethene	—	—	9J	—	5J	25J	12J
toluene	—	—	—	—	—	3J	—
Semivolatile Organics							
phenanthrene	—	—	—	—	220J	—	—
fluoranthene	—	—	—	—	190J	—	—
pyrene	—	—	—	—	130J	—	—
bis(2-ethylhexyl)phthalate	2,300	650J	870J	3,500	240J	—	300J
Pesticides/PCBs							
Endrin					[illegible]		
4,4'-DDD	—	—	—	—	110	—	—
Aroclor 1254	—	—	56J	—	770	—	—
Analyte Detected (values in mg/kg)							
aluminum	11,100	20,600	27,800	18,200	13,700	17,400	15,800
antimony	253NJ	80.4NJ	116NJ	385NJ	R	R	R
arsenic	21.9NJ	25.7NJ	12.9NJ	23.1NJ	3.9NJ	5.8NJ	10.4NJ
barium	169	127	177	217	122	119	75.7

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7
beryllium	1.2B	1.3B	1.3B	0.98B	1.2	1B	0.75B
cadmium	10.6	7.7	8.3	20.9	4.8	3.8	3.6
calcium	55,600	37,500	74,000	176,000	40,500	15,500	1,210B
chromium	22,100	6,120	10,000	34,500	671	51.8	21.8
cobalt	36.5	25	14.8B	26.3	8.2B	9.4B	8.9B
copper	4,370	1,820	2,090	12,800	216	31.5	9.5
iron	23,600	35,300	28,200	6,810	29,300	25,200	26,200
lead	174*J	21*J	44.4*J	117*J	7.7*J	15.2*J	24.9*J
magnesium	4,860	9,200	13,300	3,680	9,180	5,580	2,530
manganese	397N*J	327N*J	467N*J	89.2N*J	2,810N*J	705N*J	320N*J
mercury	0.41NJ	0.17NJ	—	0.45NJ	—	—	—
nickel	9,580	2,990	4,590	24,300	669	38.4	15.9
potassium	1,620B	3,540	3,380	498B	1,650	1,790	1,570
selenium	1.3B	0.85B	1.6B	3.2	0.33BWJ	0.42B	0.54B
silver	R	R	R	7.1NJ	R	R	R
sodium	57.6B	41.6B	—	—	114B	35.3B	—
vanadium	—	4.3BNJ	—	—	38.8NJ	38.2NJ	34.5NJ
zinc	3,360	1,470	1,930	3,790	1,010	115	81.9
cyanide	30.6NJ	8.7NJ	—	143NJ	—	—	—

— Not detected.

Table 4-1 (Cont.)

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semi-quantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocols.	Analyte value is not usable.

5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section presents discussions of data and information pertaining to potential migration pathways and targets of TCL compounds and TAL analytes that are possibly attributable to the GMC-FBD site.

The five migration pathways of concern discussed are groundwater, surface water, air, fire and explosion, and direct contact.

5.2 GROUNDWATER

Groundwater samples were not collected by FIT because of a lack of wells potentially downgradient of disposal areas A, B, and C. However, TCL compounds and TAL analytes that are attributable to the site were detected in on-site soil samples, including 4,4'-DDD at 110 µg/kg and Aroclor 1254 at 770 µg/kg in sample S5, and chromium at 34,500 mg/kg, copper at 12,800 mg/kg, nickel at 24,300 mg/kg, zinc at 3,790 mg/kg, mercury at 0.45NJ mg/kg, and cyanide at 143NJ mg/kg in sample S4. These TCL compounds and TAL analytes are attributable because they were detected at levels above those of the background sample, and because electroplating sludges primarily consisting of cadmium, chromium, nickel, and cyanide were deposited in on-site disposal areas A, B, and C for approximately 17 years.

A potential exists for the migration of TCL compounds and TAL analytes to groundwater from the GMC-FBD site because disposal areas A, B, and C are unlined. The potential is also based on the following geologic and hydrogeologic information. The Elyria area lies on a glaciated, relatively flat lake plain on the edges of Old Lake

Whittlesly, Lake Maumee, and Lake Warren. The area's physiographic province is near the boundary of the Appalachian Plateau and the Central Lowland province (White 1943). More specifically, the GMC-FBD site is situated near the boundary of the Interior Lowlands physiographic province, at an elevation of approximately 750 feet above mean sea level, an area of relatively flat-lying sedimentary rock from the Devonian and Mississippian ages (White 1943).

The geology in the GMC-FBD site vicinity is divided into four stratigraphic units, based on boring logs of existing on-site monitoring wells (see Appendix E for soil boring logs of the site). The uppermost unit consists of soft, light brown to greenish-gray silty clay till, sand, and gravel deposited during the Wisconsinan glacial advance approximately 10,000 years ago. The unit thickness ranges from 6 to 14 feet. Underlying the till deposits is the Orangeville Shale that consists of soft, light greenish-gray shale. This unit is not found under most of the site, but has been identified under the southeast portion of the site at a depth of approximately 5 feet. The Berea Sandstone underlies the glacial drift or the Orangeville Shale and is described as a hard, fine-grained sandstone, with occasional thin shale interbeds. The glacial deposits and the Berea Sandstone are hydraulically connected and together form the aquifer of concern (AOC). Wells in the area of the site draw from the Berea Sandstone (see Appendix F for well logs of the area of the site).

Underlying the Berea Sandstone is the Bedford Shale, which is 50 to 90 feet in thickness. It is described as a gray to reddish, silty shale with some thin, sandy horizons (Mustafa 1990). The domestic wells drawing from the AOC within a 3-mile radius of the site range in depth from 25 to 30 feet. According to local well logs, no continuous impermeable confining layers exist throughout a 3-mile radius of the site. The direction of groundwater flow is not known, but is assumed to be in a northeasterly direction because the surface topography in the area gently descends toward the Black River, which is located approximately 3/4 miles east of the site. The nearest drinking water well to the GMC-FBD site is located approximately 3,500 feet to the northwest. The aquifer used for drinking purposes in the area has an average yield of 12 to 15 gallons per minute, according to area well logs.

Residents of the city of Elyria obtain drinking water pumped from Lake Erie, which is approximately 7 miles north of the GMC-FBD site. Many residents outside Elyria city limits have the option of purchasing drinking water from Elyria or from the Rural Lorain County Water Authority, which also distributes water pumped from Lake Erie (Kuzak 1986).

Potential targets of groundwater contamination include residents outside Elyria city limits who use private wells that draw drinking water from the AOC. A house count from United States Geological Survey (USGS) topographic maps of the area of the site (USGS 1963, 1963a, 1969, 1969a) showed 668 houses within a 3-mile radius of the site and outside municipal and rural water supply boundaries. This number was then multiplied by a persons-per-household value of 2.69 for Lorain County, Ohio (U.S. Bureau of the Census 1982), which yields a groundwater target population of 1,991 persons.

5.3 SURFACE WATER

The former outfall located at the northeast corner of disposal area C discharged into the same drainage ditch that is currently used to carry storm water runoff to the Black River. Therefore, TCL compounds and TAL analytes that might have been detected at the discharge point of the ditch into the Black River could not have been conclusively attributed to the GMC-FBD site. As a result, FIT did not sample surface water or sediment from the Black River during the SSI.

Because waste at the site is primarily covered or buried, an overland migration route for TCL compounds and TAL analytes from the site to surface water does not appear to exist; however, a potential for TCL compounds and TAL analytes to migrate from the site to the Black River exists, based on the following information.

- TCL compounds and TAL analytes were detected in on-site soil samples.

- Wastewater was discharged directly to the drainage ditch through outfall 001 between 1956 and 1988.

- The primary constituents of wastewaters derived from plating operations at the General Motors plant were chromium, cadmium, nickel, and cyanide.

- TCL compounds and TAL analytes may also migrate to the Black River via groundwater base flow.

The Black River is used for recreational purposes. However, because no surface water intakes exist within a 3-mile radius of the site, there is no target population (U.S. EPA 1984).

5.4 AIR

A release of TCL compounds or TAL analytes to the air was not documented during the SSI of the GMC-FBD site. During the reconnaissance inspection, FIT site-entry instruments (OVA 128, HNu, oxygen meter, explosimeter, and hydrogen cyanide detector) did not detect levels above background concentrations at the site. In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

A potential does not exist for TCL compounds and TAL analytes to migrate from the site via windblown particulates because of adequate vegetative cover at the site.

5.5 FIRE AND EXPLOSION

According to federal, state, and local file information reviewed by FIT, and an interview with the Elyria fire chief, Schue, no documentation exists of an incident of fire or explosion at the site (Schue 1990). According to FIT observations and site-entry equipment readings, no potential for fire or explosion existed at the site at the time of the SSI.

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, observations made during the SSI, and the interview with the site representatives, no incidents of direct contact with TCL compounds or TAL analytes at the GMC-FBD site have been documented. A potential does

not appear to exist for the public to be exposed to direct contact with TCL compounds and TAL analytes detected on-site, based on the following observations.

- The site is fenced, and has a gate that is locked 24 hours per day.

- The on-site disposal areas are covered and vegetated.

Fauna, however, could potentially become exposed to TCL compounds and TAL analytes through the ingestion of contaminated flora on-site. FIT observed deer on-site.

6. REFERENCES

Bush, William, P.E., July 12, 1978, District Engineer, OEPA, letter, to J. W. Canan, Plant Engineer, General Motors.

E & E, 1987, Quality Assurance Project Plan Region V FIT Conducted Site Inspections, Chicago, Illinois.

Fisco, Raymond, May 6, 1970, General Motors, Plating and Industrial Waste Treatment at the Expanded Plant of Fisher Body, Elyria, Ohio.

Kienle, Philip, October 19, 1990, Senior Environmental Engineer, General Motors, letter, to Cynthia Schultz of E & E.

Kuzak, Dale, February 24, 1986, Superintendent of Water Distribution, Elyria Water Department, telephone conversation, contacted by Pat Patrella of E & E.

Mustafa, Ahmed, March 30, 1990, Groundwater Division, Northeast District Office, OEPA, Comprehensive Groundwater Monitoring Evaluation of General Motors's Inland Fisher Guide Division.

_____, June 16, 1990a, Groundwater Division, Northeast District Office, OEPA, telephone conversation, contacted by Bill Shaeffer of E & E.

OEPA, September 30, 1985, NPDES permit, number 3IS00001-CD, effective September 30, 1985, expired September 27, 1990.

Schue, June 21, 1990, Fire Chief, Elyria Fire Department, telephone conversation, contacted by Bill Shaeffer of E & E.

U.S. Bureau of the Census, 1982, 1980 Census of Population, Characteristics of the Population, General Population Characteristics, Ohio, Washington, D.C.

U.S. EPA, June 2, 1981, Notification of Hazardous Waste Site form, prepared by H. H. Linz, Plant Manager, General Motors.

_____, March 30, 1984, Potential Hazardous Waste Site Preliminary Assessment, for the GMC-FBD site, U.S. EPA ID: OHD004201091, prepared by Catherine McCord, Northeast District Office, OEPA.

_____, February 12, 1988, Office of Solid Waste and Emergency Response, Pre-Remedial Strategy for Implementing SARA, Directive number 9345.2-01, Washington, D.C.

USGS, 1963, Avon, Ohio Quadrangle, 7.5 Minute Series: 1:24,000.

_____, 1963a, Grafton, Ohio Quadrangle, 7.5 Minute Series: 1:24,000.

_____, 1969, Lorain, Ohio Quadrangle, 7.5 Minute Series: 1:24,000.

_____, 1969a, Oberlin, Ohio Quadrangle, 7.5 Minute Series: 1:24,000.

White, George W., 1943, Geology of Water in Ohio, Bulletin 44, Ohio Department of Natural Resources.

6488:9

APPENDIX A

SITE 4-MILE RADIUS MAP

APPENDIX B

U.S. EPA FORM 2070-13

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: OOO4201091

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
GMC - FISHER BODY DIVISION	1400 LOWELL STREET				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
ELYRIA	OH	44036	LORAIN	093	13

09 COORDINATES: LATITUDE 41° 22' 15.0" N | LONGITUDE 082° 08' 20.0" W

10 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
9 18 90 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1946 (BEGINNING YEAR) 1988 (ENDING YEAR) ☐ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR (Name of firm): ECOLOGY & ENVIRONMENT ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR (Name of firm) _____
☐ E. STATE ☐ F. STATE CONTRACTOR (Name of firm) _____ ☐ G. OTHER (Specify) _____

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
CINDY SCHULTZ	ENV. HEALTH SPECIALIST	E+E	(312)663-9415
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
RANDY LIVINGSTON	GEOGRAPHER	E+E	(312)663-9415
MIKE WALTERS	GEOGRAPHER	E+E	(312)663-9415
JENNIFER DUBAY	NATURAL RESOURCE MAN.	E+E	(312)663-9415
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
PHILLIP KIENLE - GMC	SR. ENV. ENGINEER	1400 LOWELL ST ELYRIA, OH 44036	(313) 578-3006
LOWELL METZGER O.H. MATERIAL	CONSULTANT	16406 U.S. ROUTE 224E FINDLAY, OH	419-423-3526
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	0800 - 1735	70° SUNNY

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
AHMET MUSTAFA	OEPA - NE DISTRICT OFFICE	(216) 425-9171

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
BRAD STIMPLE	U.S EPA	E+E/FIT	312-663-9415	1 3 91 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D004201091

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [ ] B. POWDER, FINES
- [X] C. SLUDGE
- [ ] D. OTHER _____ (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS: UNKNOWN
CUBIC YARDS: UNKNOWN
NO. OF DRUMS: UNKNOWN

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [X] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [X] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	UNKNOWN		
OLW	OILY WASTE			
SOL	SOLVENTS	UNKNOWN		SEE TABLE 4-1 AND NARRATIVE
PSD	PESTICIDES	"		
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	UNKNOWN		
ACD	ACIDS	"		
BAS	BASES	"		
MES	HEAVY METALS	"		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	SEE TABLES 4-1 IN SECTION 4 "ANALYTICAL RESULTS"				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90
DATA ANALYSIS OF FIT-COLLECTED SAMPLES
FIT FILE INFO. / OEPA FILE INFO.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D004201091

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION | 02 ☐ OBSERVED (DATE: _____) | ■ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1991 | 04 NARRATIVE DESCRIPTION

SEE SUBSECTION 5.2 "GROUNDWATER"

01 ■ B. SURFACE WATER CONTAMINATION | 02 ☐ OBSERVED (DATE: _____) | ■ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: UNKNOWN | 04 NARRATIVE DESCRIPTION

SEE SUBSECTION 5.3 "SURFACE WATER"

01 ☐ C. CONTAMINATION OF AIR | 02 ☐ OBSERVED (DATE: _____) | ☐ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ | 04 NARRATIVE DESCRIPTION

SEE SUBSECTION 5.4 "AIR"

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS | 02 ☐ OBSERVED (DATE: _____) | ☐ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ | 04 NARRATIVE DESCRIPTION

SEE SUBSECTION 5.5 "FIRE AND EXPLOSION"

01 ■ E. DIRECT CONTACT | 02 ☐ OBSERVED (DATE: _____) | ■ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ | 04 NARRATIVE DESCRIPTION

SEE SUBSECTION 5.6 "DIRECT CONTACT"

01 ■ F. CONTAMINATION OF SOIL | 02 ■ OBSERVED (DATE: 9/18/90) | ☐ POTENTIAL | ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 65,000 C.Y. (ACRES) | 04 NARRATIVE DESCRIPTION

SEE SUBSECTION 5.2 "GROUNDWATER" AND SECTION 4 "ANALYTICAL RESULTS"

01 ■ G. DRINKING WATER CONTAMINATION | 02 ☐ OBSERVED (DATE: _____) | ■ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1991 | 04 NARRATIVE DESCRIPTION

SEE SUBSECTIONS 5.2 "GROUNDWATER" + 5.3 "SURFACE WATER"

01 ☐ H. WORKER EXPOSURE/INJURY | 02 ☐ OBSERVED (DATE: _____) | ☐ POTENTIAL | ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ | 04 NARRATIVE DESCRIPTION

SITE IS INACTIVE

01 ■ I. POPULATION EXPOSURE/INJURY | 02 ☐ OBSERVED (DATE: _____) | ■ POTENTIAL | ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1991 | 04 NARRATIVE DESCRIPTION

REFER TO "A" ABOVE & G

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: DC0420109

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ■ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

TAL ANALYTES + TCL COMPOUNDS DETECTED IN SOIL SAMPLES, COULD POTENTIALLY EFFECT VEGETATION ON-SITE

01 ■ K. DAMAGE TO FAUNA — 02 ■ OBSERVED (DATE: 9/18/90) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

FAUNA COULD BE EXPOSED TO TCL COMPOUNDS AND TAL ANALYTES THROUGH THE INGESTION OF CONTAMINATED FLORA, DESPITE THE PRESENCE OF A FENCE. DEER WERE OBSERVED WITHIN THE SITE PERIMETER

01 ■ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

THE FOOD CHAIN COULD BE INDIRECTLY AFFECTED THROUGH THE BIOACCUMULATION OF TCL COMPOUNDS AND TAL ANALYTES

01 ■ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1991
04 NARRATIVE DESCRIPTION

WASTE BURIED ON-SITE, CONTAMINATED AT SIGNIFICANTLY HIGH TCL COMPOUND AND TAL ANALYTE LEVELS. NO LINER IS PRESENT BENEATH IMPOUNDMENTS.

01 ■ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: 9/18/90) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NONE OBSERVED

01 ■ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ■ OBSERVED (DATE: 9/18/90) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

REFER TO SECTIONS 2.3 AND 5.3

01 ■ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

SEE SUBSECTION 2.3 "SITE HISTORY"

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

NONE OBSERVED BY FIT DURING THE 9/18/90 SSI

III. TOTAL POPULATION POTENTIALLY AFFECTED: 1991

IV. COMMENTS

NONE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90
DATA ANALYSIS OF FIT-COLLECTED SAMPLES
FIT FILE INFORMATION / OEPA FILE INFO.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D004201091

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
■ A. NPDES	OEPA 3IS00001 CD	9/30/85	9/27/90	WITHDREW PERMIT ON MAY 19, 1989
☐ B. UIC				
■ C. AIR				VOCs OPERATIONAL PERMITS
☐ D. RCRA				
■ E. RCRA INTERIM STATUS	OHD004201091			STORAGE PAD / POST CLOSURE
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
■ A. SURFACE IMPOUNDMENTS	~65,000 CY	
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
■ F. LANDFILL	~40,000 CY	
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)
- ☐ A. INCINERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER N/A (Specify)

05 OTHER
- ■ A. BUILDINGS ON SITE PARCEL A - 3, PARCEL B - 0

06 AREA OF SITE
PARCEL B - 85 (Acres)
PARCEL A - 141

07 COMMENTS
- SITE CONSISTS OF 3 PREVIOUS UNREGULATED DISPOSAL
- AREAS, AND ONE RCRA REGULATED CAPPED LANDFILL

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
☐ A. ADEQUATE, SECURE ☐ B. MODERATE ■ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
NONE OBSERVED BY FIT DURING THE 9/18/90 SSI.
(3 DISPOSAL AREAS)

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ■ NO

02 COMMENTS
FENCED AND LOCKED. MAJORITY OF SITE IS CAPPED AND VEGETATED (PARCEL B)

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90
DATA ANALYSIS OF FIT COLLECTED SAMPLES
FIT FILE INFORMATION / OEPA FILE INFO.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D004201091

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☒	B. ☐
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☒
D. ☐ UNKNOWN	E. ☐	F. ☐

03 DISTANCE TO SITE

A. ~7 (mi)
B. 3500 FT (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☒ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 1991 - 3 MILE RADIUS

03 DISTANCE TO NEAREST DRINKING WATER WELL 3500 FT (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
25-30 (ft)	UNKNOWN	5-8 (ft)	5-12 g.p.m. (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

ELYRIA UTILIZES WATER PUMPED FROM LAKE ERIE APPROX 7 MILES AWAY. RESIDENTS OUTSIDE ELYRIA CITY LIMITS MAY BUY WATER FROM ELYRIA OR NEIGHBORING COMMUNITIES. SMALL PORTIONS DRAW FROM PRIVATE WELLS

10 RECHARGE AREA		11 DISCHARGE AREA	
☒ YES ☐ NO	COMMENTS: PERCOLATION OF PRECIPITATION TO GROUNDWATER	☒ YES ☐ NO	COMMENTS: LOCAL LAKES, DITCHES RIVERS MAY ACT AS DISCHARGE AREAS.

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION, DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
BLACK RIVER	☐	~3/4 (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 5626 NO. OF PERSONS	B. 26530 NO. OF PERSONS	C. 46433 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 1/8 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: 9936

04 DISTANCE TO NEAREST OFF-SITE BUILDING: 1/8 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

SEE SUBSECTION 5.2 "GROUNDWATER"

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D004201091

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☒ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☒ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
15-25 (ft)	UNKNOWN (ft)	UNKNOWN	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
4.95 (in)	2 (in)	≤3 %	EAST	~3 %

09 FLOOD POTENTIAL
AREA OF MINIMAL FLOODING
SITE IS IN ____ YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY
N/A

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. N/A (mi)	B. ~1 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
N/A (mi)
ENDANGERED SPECIES N/A

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 1/4-1/2 (mi)	B. 1/2-1/4 (mi)	C. N/A (mi)	D. ADJACENT (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

SEE SUBSECTION 3.3 "RECONNAISSANCE OBSERVATIONS" AND APPENDIX A "SITE 4 MILE RADIUS MAP"

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90
FIT FILE INFORMATION
OEPA FILE INFORMATION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D004201091

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE		/	
AIR			
RUNOFF		TCL COMPOUNDS	
SPILL		S-CUBED; SAN DIEGO, CA.	
SOIL	7	TAL ANALYTES	AVAILABLE
VEGETATION		BETZ LABORATORIES; THE WOODLANDS, TX.	
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
OVA 128	NO DEVIATION FROM BACKGROUND
HNU / 10.2 PROBE	NO DEVIATION FROM BACKGROUND
O2 / EXPLOSIMETER COMBO METER	NO DEVIATION FROM BACKGROUND
MONITOX	NO DEVIATION FROM BACKGROUND
MONITOR 4	NOT AVAILABLE.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND □ AERIAL

02 IN CUSTODY OF E+E
(Name of organization or individual)

03 MAPS ■ YES □ NO

04 LOCATION OF MAPS E+E, 111 W. JACKSON BLVD., CHICAGO, IL. 60604

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

NONE

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90
FIT FILE INFORMATION
OEPA FILE INFORMATION

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D004201091

II. CURRENT OWNER(S)

01 NAME: GMC - INLAND FISHER GUIDE | 02 D+B NUMBER: UNKNOWN
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 6600 E. 12 MILE ROAD | 04 SIC CODE: UNKNOWN
05 CITY: WARREN | 06 STATE: MI | 07 ZIP CODE:

01 NAME: NORTHERN OHIO INDUSTRIAL PARK | 02 D+B NUMBER: N/A
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 1400-1438 LOWELL ST | 04 SIC CODE: N/A
05 CITY: ELYRIA | 06 STATE: OH | 07 ZIP CODE: 44036

01 NAME: N/A | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

01 NAME: N/A | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

PARENT COMPANY (if applicable)

08 NAME: GENERAL MOTORS CORP. | 09 D+B NUMBER: N/A
10 STREET ADDRESS (P.O. Box, RFD #, etc.): 3044 W. GRAND BLVD. | 11 SIC CODE: N/A
12 CITY: DETROIT | 13 STATE: MI | 14 ZIP CODE: 48202

08 NAME: N/A | 09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.): | 11 SIC CODE:
12 CITY: | 13 STATE: | 14 ZIP CODE:

08 NAME: N/A | 09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.): | 11 SIC CODE:
12 CITY: | 13 STATE: | 14 ZIP CODE:

08 NAME: N/A | 09 D+B NUMBER:
10 STREET ADDRESS (P.O. Box, RFD #, etc.): | 11 SIC CODE:
12 CITY: | 13 STATE: | 14 ZIP CODE:

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME: UNKNOWN | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

01 NAME: UNKNOWN | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

01 NAME: UNKNOWN | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

IV. REALTY OWNER(S) (if applicable, list most recent first)

01 NAME: N/A | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

01 NAME: N/A | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

01 NAME: N/A | 02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): | 04 SIC CODE:
05 CITY: | 06 STATE: | 07 ZIP CODE:

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90
FIT FILE INFORMATION / OEPA FILE INFO.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D004020891

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
PLANT IS INACTIVE.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE
/		

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
GMC - INLAND FISHER GUIDE	UNKNOWN

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
1400 OWELL ST	UNKNOWN

05 CITY	06 STATE	07 ZIP CODE
ELYRIA	OH	44036

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
3?	GMC

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
GENERAL MOTORS CORP.	N/A

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
3044 W. GRAND BLVD.	N/A

14 CITY	15 STATE	16 ZIP CODE
DETROIT	MI	48202

01 NAME	02 D+B NUMBER
N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER
N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI. CONDUCTED 9/18/90

F T FILE INFORMATION

OEPA FILE INFORMATION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D004820191

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
GMC-FISHER BODY DIV.	UNKNOWN

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
1400 LOWELL ST	UNKNOWN

05 CITY	06 STATE	07 ZIP CODE
ELYRIA	OH	44036

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
UNKNOWN			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI CONDUCTED 9/18/90

FIT FILE INFORMATION

OEPA FILE INFORMATION

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE: 02 SITE NUMBER
02 D004201091

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	ID 000420 1091

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☒ S. CAPPING/COVERING — 02 DATE UNKNOWN — 03 AGENCY _____
04 DESCRIPTION
CLAY

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☒ Y. LEACHATE TREATMENT — 02 DATE UNKNOWN — 03 AGENCY _____
04 DESCRIPTION
PRIMARY AND SECONDARY — ENGINEERED LANDFILL

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NONE

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D004201091

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION [X] YES [ ] NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

SEE SUBSECTION, 2.3 "SITE HISTORY"

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT FILE INFORMATION
OEPA FILE INFORMATION

EPA FORM 2070-13 (7-81)

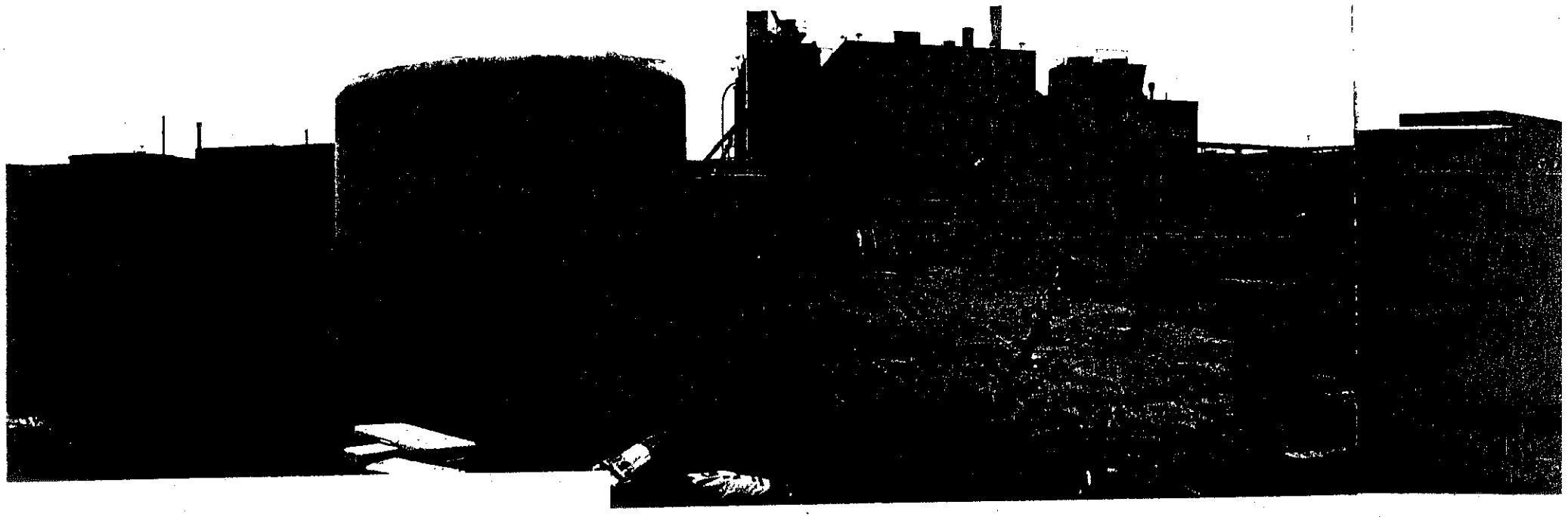
APPENDIX C

FIT SITE PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Division Elyria Plant PAGE 1 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: F0H0331SB



DATE: 9/18/90 TIME: 16:20 DIRECTION OF PHOTOGRAPH: West PHOTOGRAPHED BY: C. Schultz

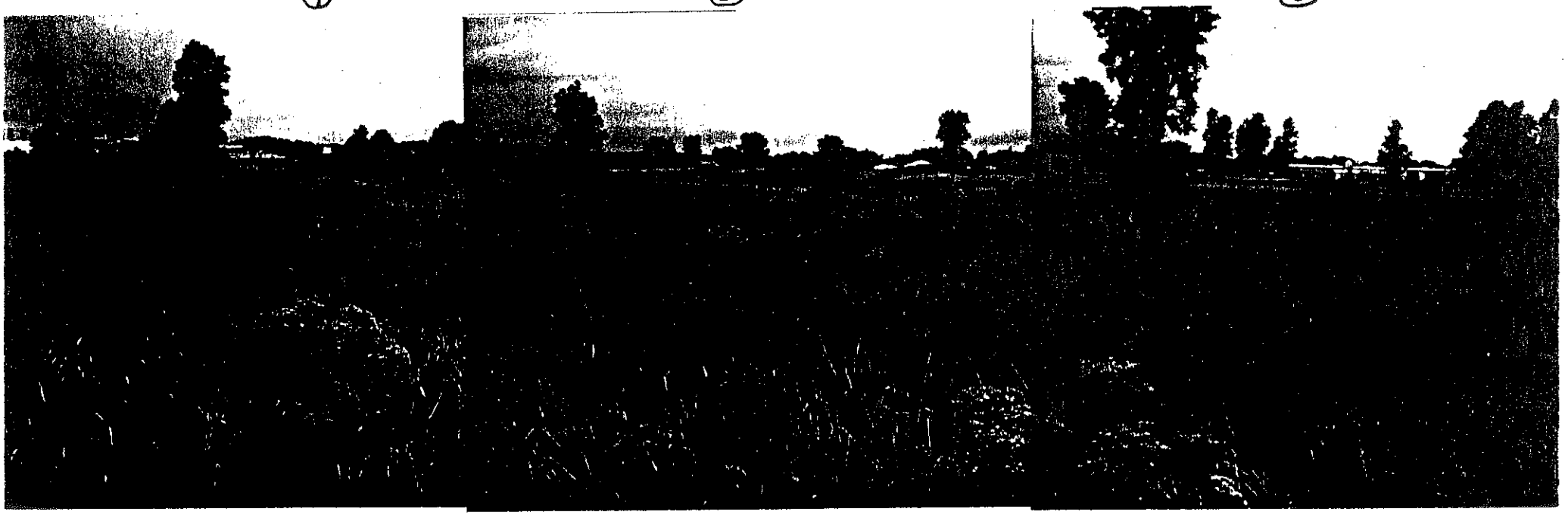
WEATHER CONDITIONS: 75°F, SUNNY SAMPLE ID (if applicable): NA

DESCRIPTION: former GMC plant. Note GMC wastewater treatment plant at far right.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Division Elyria Plant PAGE 2 OF 10

U.S. EPA ID: OHD004201091 (4) TDD: F05-9004-011 (5) PAN: F04033SB (6)



DATE: 9/18/90 TIME: 10:15 DIRECTION OF PHOTOGRAPH: NORTH PHOTOGRAPHED BY: C. Schutte

WEATHER CONDITIONS: 65°F, SUNNY SAMPLE ID (if applicable): NA

DESCRIPTION: Areas "A" AND "B" COVERED WITH FILL MATERIAL. BOUNDARIES ARE ESTIMATES ONLY.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fisher Body Elyria Plant PAGE 3 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: F0H0331SB

DATE: > 9/18/90

TIME: > 1300

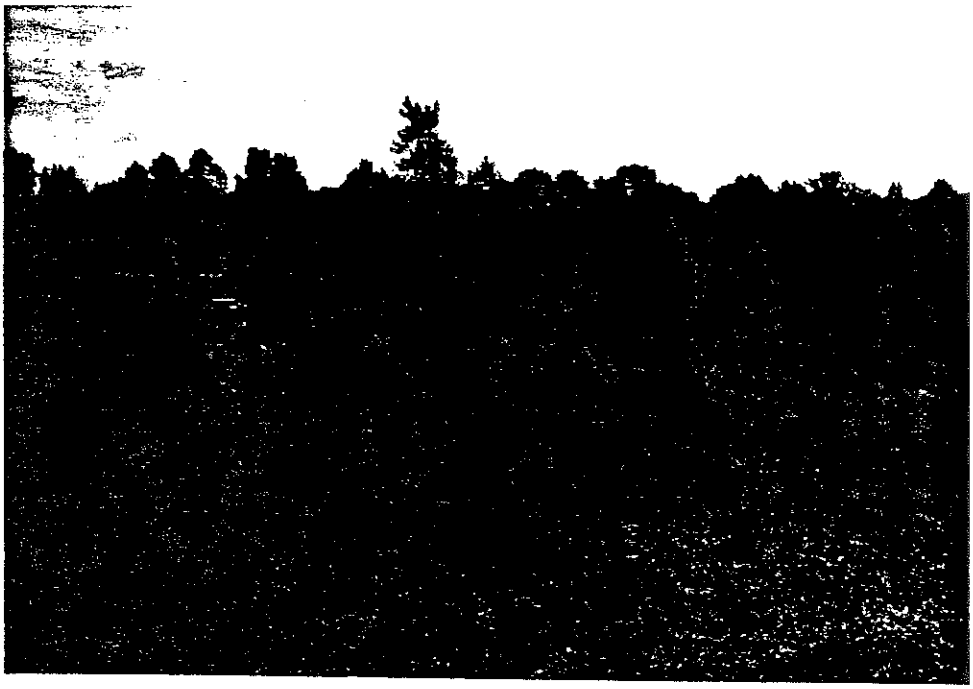
DIRECTION OF PHOTOGRAPH:
> EAST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> NA



7

DESCRIPTION: > APPROXIMATE BOUNDARY OF AREA "C"

> NOW COVERED WITH FILL MATERIAL.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Elyria Plant PAGE 4 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: F0H0331SB

DATE: > 9/18/90

TIME: > 1255

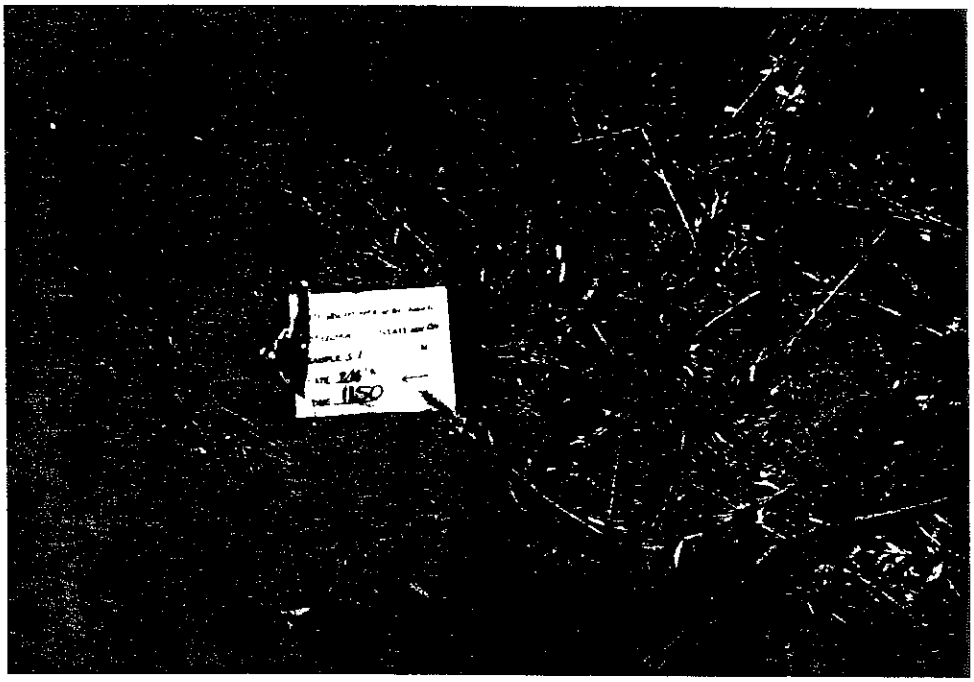
DIRECTION OF PHOTOGRAPH: > W

WEATHER CONDITIONS: > 75°F

> SUNNY

PHOTOGRAPHED BY: > C. SCHULTZ

SAMPLE ID (if applicable): > S1



8

DESCRIPTION: > CLOSE UP OF SOIL SAMPLE S1.

>

DATE: > 9/18/90

TIME: > 1255

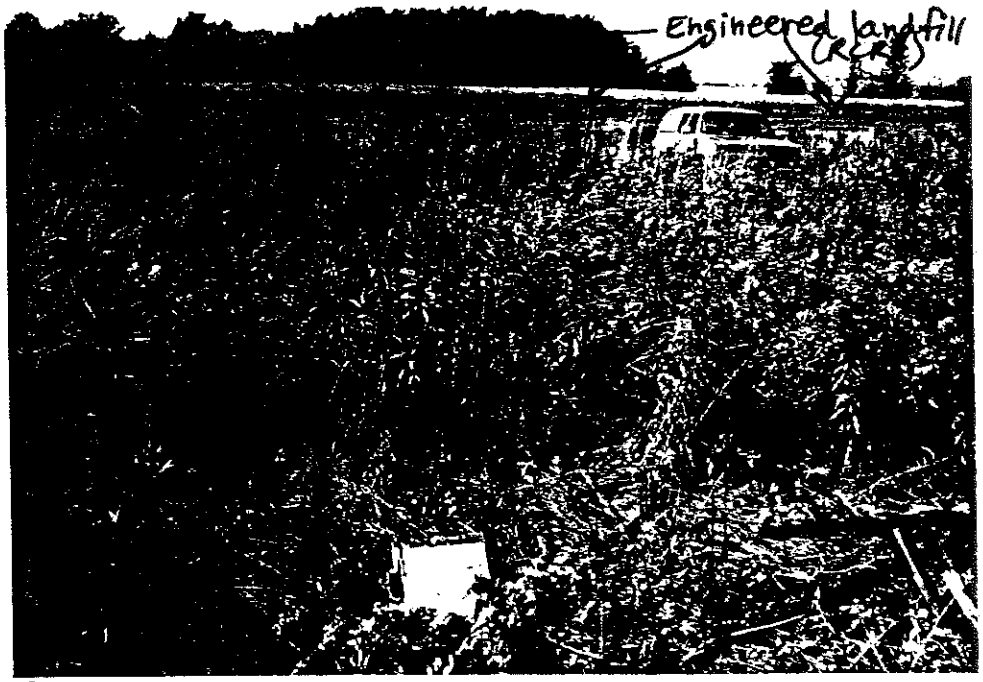
DIRECTION OF PHOTOGRAPH: > W

WEATHER CONDITIONS: > 75°F

> SUNNY

PHOTOGRAPHED BY: > C. SCHULTZ

SAMPLE ID (if applicable): > S1



9

DESCRIPTION: > PERSPECTIVE OF SOIL S1. NOTE RCRA

> ENGINEERED LANDFILL IN THE BACKGROUND. COLLECTED IN AREA "C".

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fisher Body Elyria Plant PAGE 5 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: F0H0331SB

DATE: > 9/18/90

TIME: > 1255

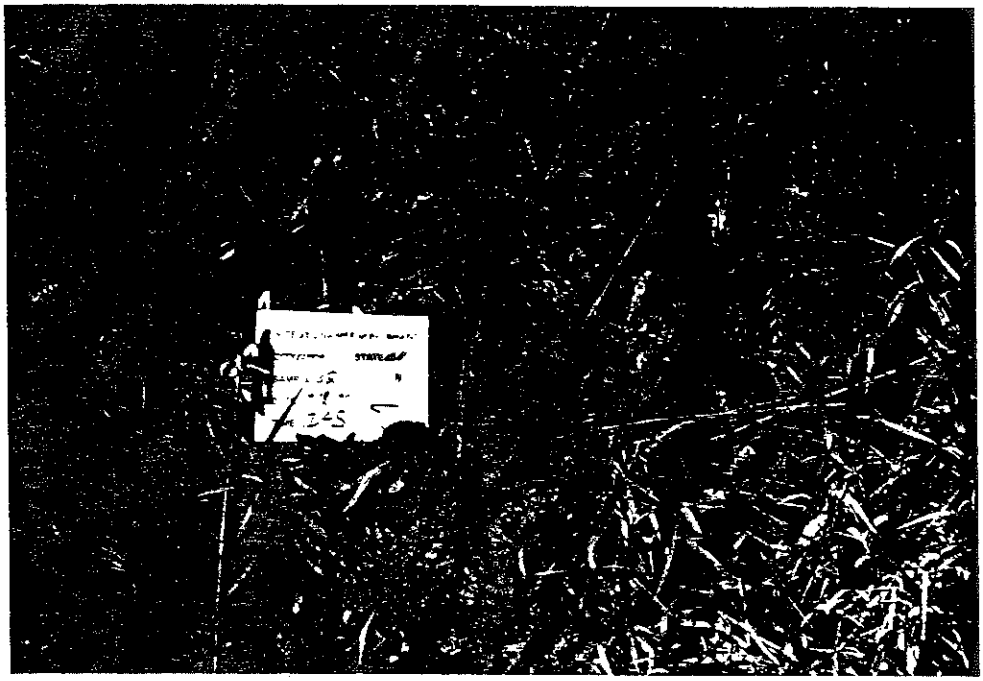
DIRECTION OF PHOTOGRAPH:
> W

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S2



10

DESCRIPTION: > CLOSE UP OF SOIL SAMPLE S2.

>

DATE: > 9/18/90

TIME: > 1255

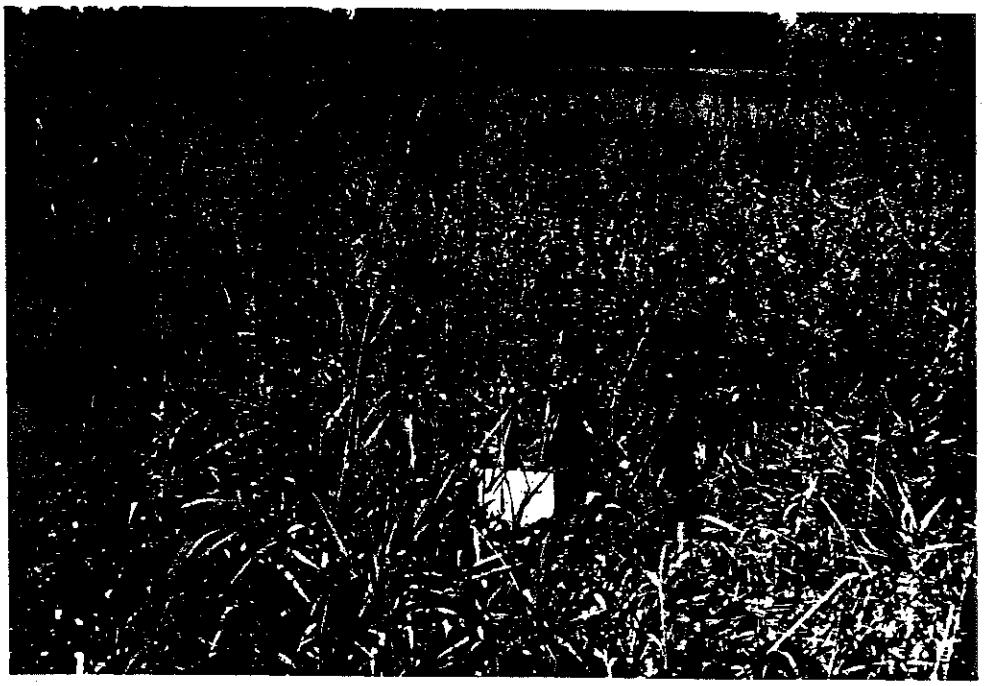
DIRECTION OF PHOTOGRAPH:
> W

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S2



11

DESCRIPTION: > PERSPECTIVE OF SOIL SAMPLE S2

> LOCATED IN AREA "C".

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Elyria Plant PAGE 6 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: FOH0331SB

DATE: > 9/18/90

TIME: > 1355

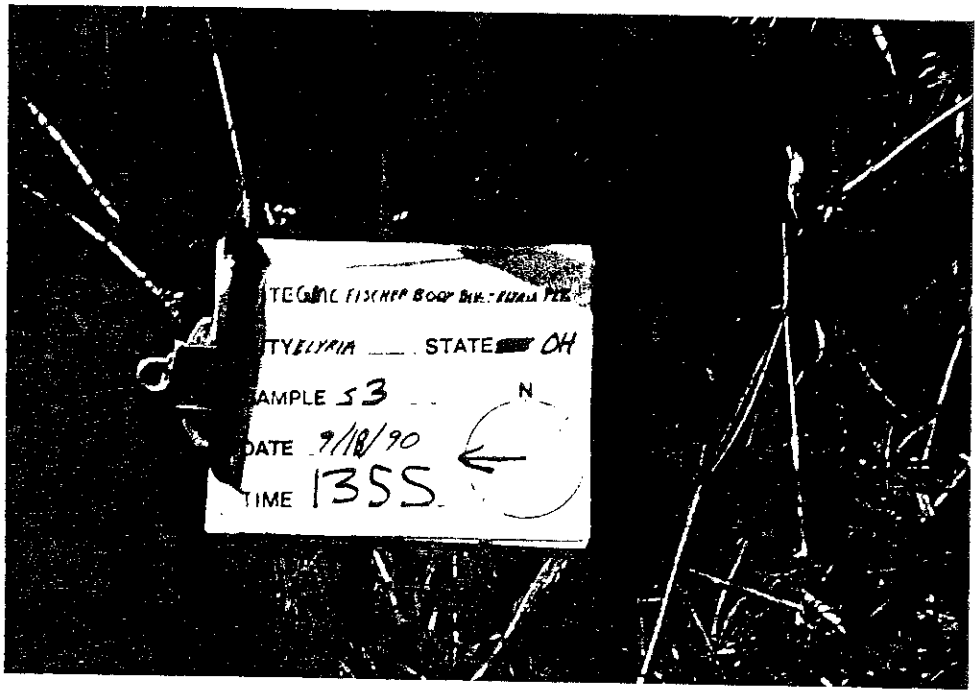
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S3



12

DESCRIPTION: > CLOSE UP OF S3. COLLECTED IN AREA
> "B". NOTE BRIGHT BLUE COLORING OF SOIL.

DATE: > 9/18/90

TIME: > 1355

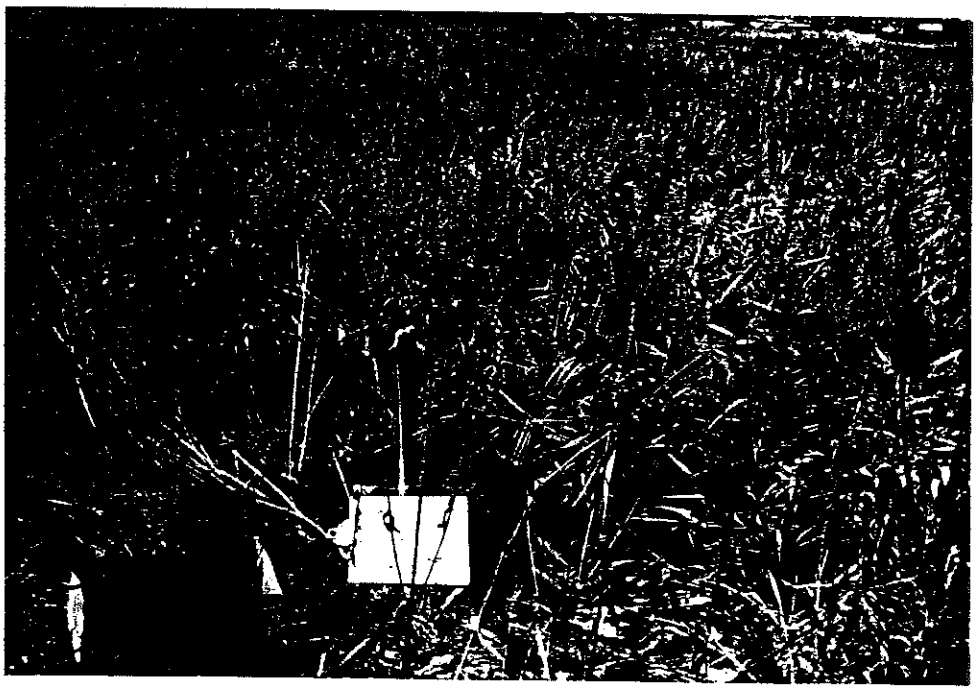
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S3



13

DESCRIPTION: > PERSPECTIVE OF S3.
>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Elyria Plant PAGE 7 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: FOH033ISB

DATE: > 9/18/90

TIME: > 1435

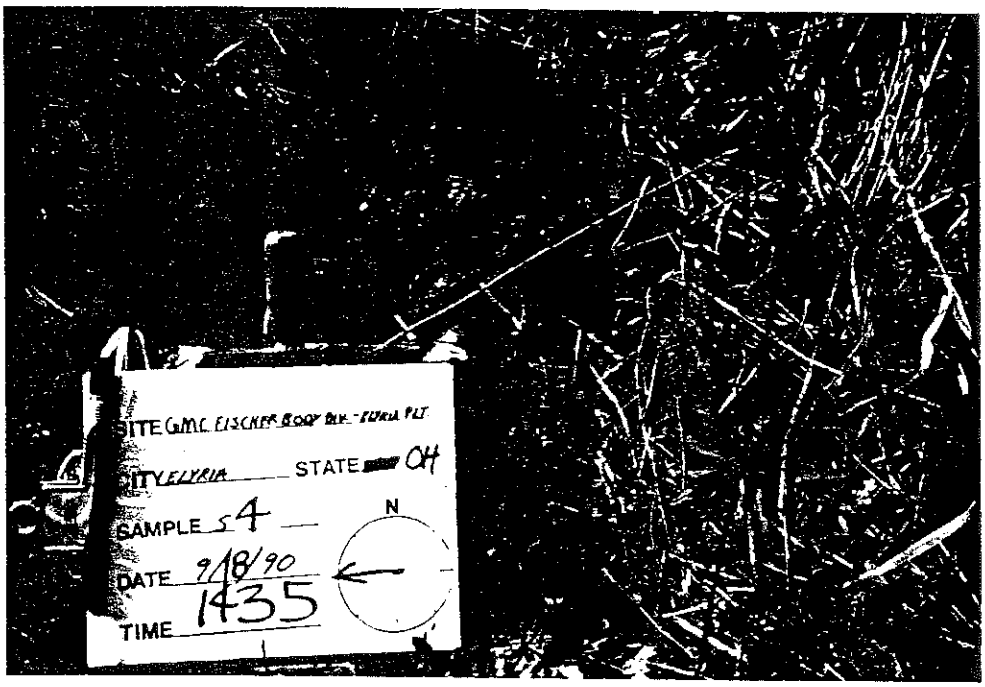
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S4



14

DESCRIPTION: > CLOSE UP OF SOIL SAMPLE S4. NOTE

> BRIGHT BLUE SOIL. COLLECTED IN AREA "B"

DATE: > 9/18/90

TIME: > 1435

DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S4

DESCRIPTION: > PERSPECTIVE

> OF SOIL SAMPLE S4. GMC PLANT IN BACKGROUND

15

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Elyria Plant PAGE 8 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: FOH0331SB

DATE: > 9/18/90

TIME: > 1515

DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S5

16

DESCRIPTION: > CLOSE UP OF SOIL SAMPLE S5.

> COLLECTED FROM AREA "A".

DATE: > 9/18/90

TIME: > 1515

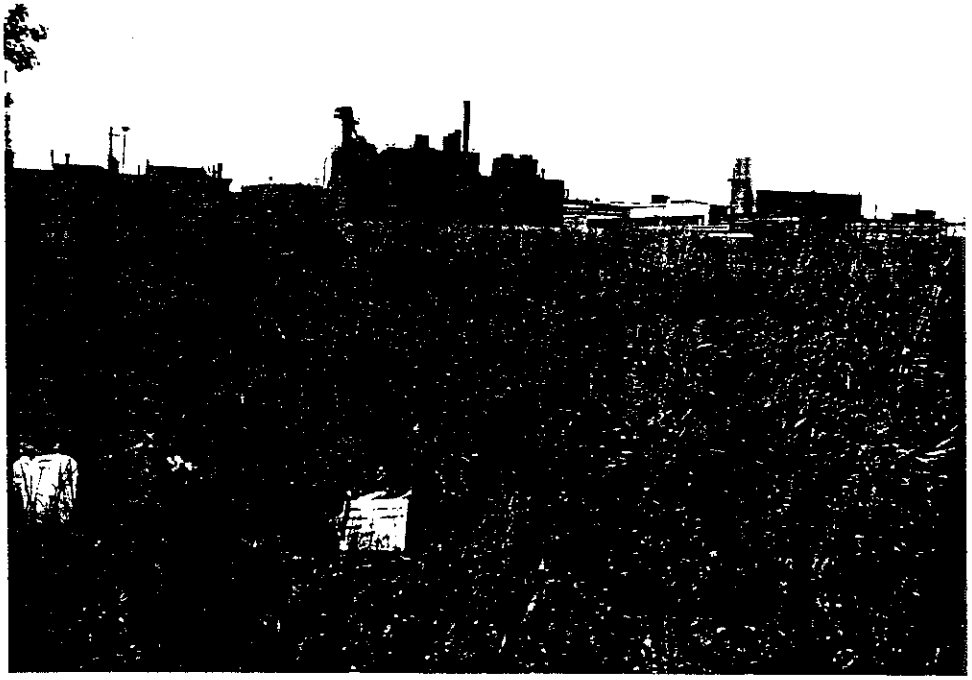
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S5



17

DESCRIPTION: > PERSPECTIVE OF S5. former GMC plant

> in background.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: GMC-Fischer Body Elyria Plant PAGE 9 OF 10

U.S. EPA ID: OHD004201091 TDD: F05-9004-011 PAN: F0H0331SB

DATE: > 9/18/90

TIME: > 1555

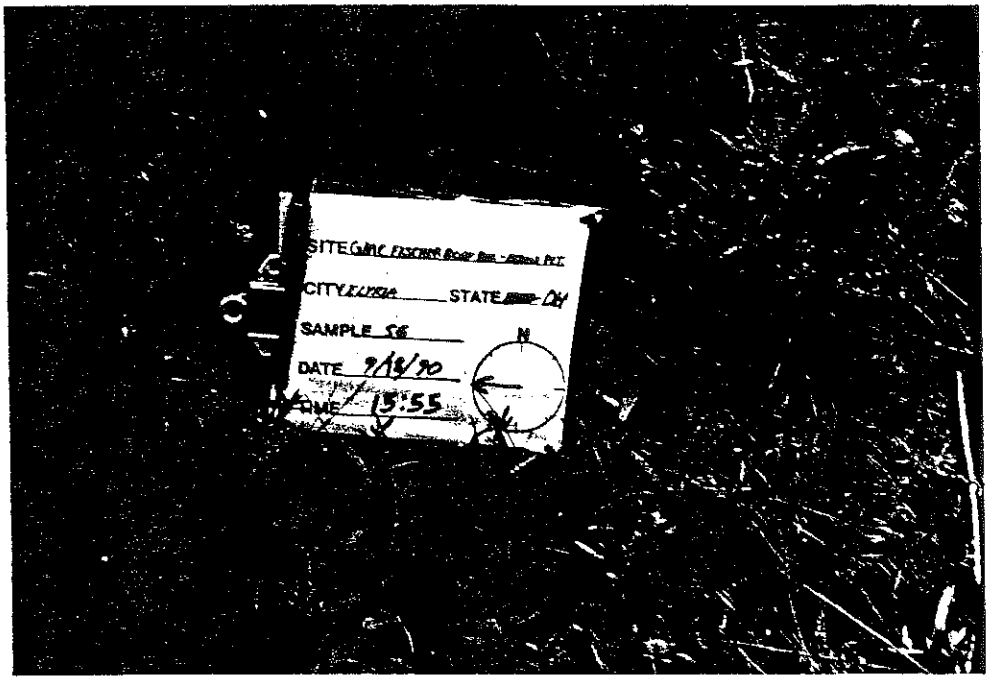
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S6



18

DESCRIPTION: > CLOSE UP OF SOIL SAMPLE S6. COLLECTED
> FROM LOCATION "A".

DATE: > 9/18/90

TIME: > 1555

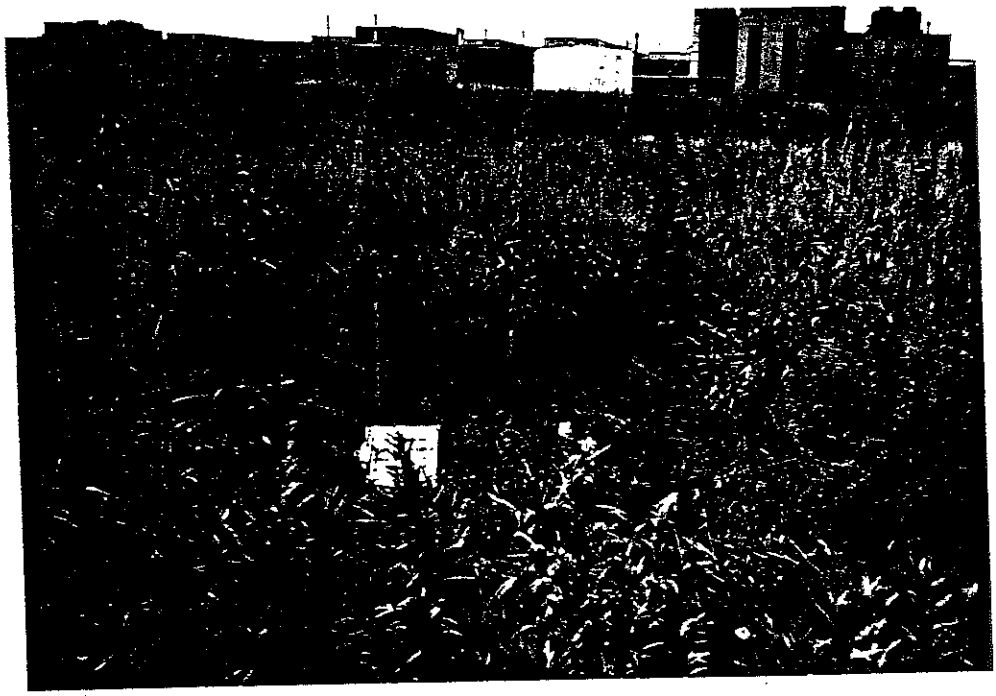
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> 75°F

> SUNNY

PHOTOGRAPHED BY:
> C. SCHULTZ

SAMPLE ID (if applicable):
> S6



19

DESCRIPTION: > PERSPECTIVE OF SOIL SAMPLE S6.
> FORMER GMC PLANT IN THE BACKGROUND.

APPENDIX D

U.S. EPA TARGET COMPOUND LIST AND TARGET ANALYTE LIST QUANTITATION/DETECTION LIMITS

ADDENDUM A

ROUTINE ANALYTICAL SERVICES
CONTRACT REQUIRED DETECTION AND QUANTITATION LIMITS

Contract Laboratory Program
Target Compound List
Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Chloromethane	74-87-3	10 ug/L	10 ug/Kg
Bromomethane	74-83-9	10	10
Vinyl chloride	75-01-4	10	10
Chloroethane	75-00-3	10	10
Methylene chloride	75-09-2	5	5
Acetone	67-64-1	10	5
Carbon disulfide	75-15-0	5	5
1,1-dichloroethene	75-35-4	5	5
1,1-dichloroethane	75-34-3	5	5
1,2-dichloroethene (total)	540-59-0	5	5
Chloroform	67-66-3	5	5
1,2-dichloroethane	107-06-2	5	5
2-butanone (MEK)	78-93-3	10	10
1,1,1-trichloroethane	71-55-6	5	5
Carbon tetrachloride	56-23-5	5	5
Vinyl acetate	108-05-4	10	10
Bromodichloromethane	75-27-4	5	5
1,2-dichloropropane	78-87-5	5	5
cis-1,3-dichloropropene	10061-01-5	5	5
Trichloroethene	79-01-6	5	5
Dibromochloromethane	124-48-1	5	5
1,1,2-trichloroethane	79-00-5	5	5
Benzene	71-43-2	5	5
Trans-1,3-dichloropropene	10061-02-6	5	5
Bromoform	75-25-2	5	5
4-Methyl-2-pentanone	108-10-1	10	10
2-Hexanone	591-78-6	10	10
Tetrachloroethene	127-18-4	5	5
Toluene	108-88-3	5	5
1,1,2,2-tetrachloroethane	79-34-5	5	5
Chlorobenzene	108-90-7	5	5
Ethyl benzene	100-41-4	5	5
Styrene	100-42-5	5	5
Xylenes (total)	1330-20-7	5	5

Table A
Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Phenol	108-95-2	10 ug/L	330 ug/Kg
bis(2-Chloroethyl) ether	111-44-4	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
Benzyl Alcohol	100-51-6	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
bis(2-Chloroisopropyl) ether	108-60-1	10	330
4-Methylphenol	106-44-5	10	330
N-Nitroso-di-n-dipropylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330
2,4-Dimethylphenol	105-67-9	10	330
Benzoic Acid	65-85-0	50	1600
bis(2-Chloroethoxy) methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachlorobutadiene	87-68-3	10	300
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	50	1600
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	50	1600
Dimethylphthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	10	330
3-Nitroaniline	99-09-2	50	1600
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	50	1600
4-Nitrophenol	100-02-7	50	1600
Dibenzofuran	132-64-9	10	330
2,4-Dinitrotoluene	121-14-2	10	330
Diethylphthalate	84-66-2	10	330
4-Chlorophenyl-phenyl ether	7005-72-3	10	330

Table A
Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SLUDGE SEDIMENT
Fluorene	86-73-7	10 ug/L	330 ug/Kg
4-Nitroaniline	100-01-6	50	1600
4,6-Dinitro-2-methylphenol	534-52-1	50	1600
N-nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl-phenylether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	50	1600
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Di-n-butylphthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butylbenzylphthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-1	20	660
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	117-81-7	10	330
Di-n-octylphthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Dibenz(a,h)anthracene	53-70-3	10	330
Benzo(g,h,i)perylene	191-24-2	10	330

Table A
Contract Laboratory Program
Target Compound List
Pesticide and PCB Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
alpha-BHC	319-84-6	0.05 ug/L	8 ug/Kg
beta-BHC	319-85-7	0.05	8
delta-BHC	319-86-8	0.05	8
gamma-BHC (Lindane)	58-89-9	0.05	8
Heptachlor	76-44-8	0.05	8
Aldrin	309-00-2	0.05	8
Heptachlor epoxide	1024-57-3	0.05	8
Endosulfan I	959-98-8	0.05	8
Dieldrin	60-57-1	0.10	16
4,4'-DDE	72-55-9	0.10	16
Endrin	72-20-8	0.10	16
Endosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endosulfan sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Methoxychlor (Mariate)	72-43-5	0.5	80
Endrin ketone	53494-70-5	0.10	16
alpha-Chlordane	5103-71-9	0.5	80
gamma-chlordane	5103-74-2	0.5	80
Toxaphene	8001-35-2	1.0	160
AROCLOR-1016	12674-11-2	0.5	80
AROCLOR-1221	11104-28-2	0.5	80
AROCLOR-1232	11141-16-5	0.5	80
AROCLOR-1242	53469-21-9	0.5	80
AROCLOR-1248	12672-29-6	0.5	80
AROCLOR-1254	11097-69-1	1.0	160
AROCLOR-1260	11096-82-5	1.0	160

Table A (Cont.)

CONTRACT LABORATORY PROGRAM

TARGET ANALYTE LIST (TAL)

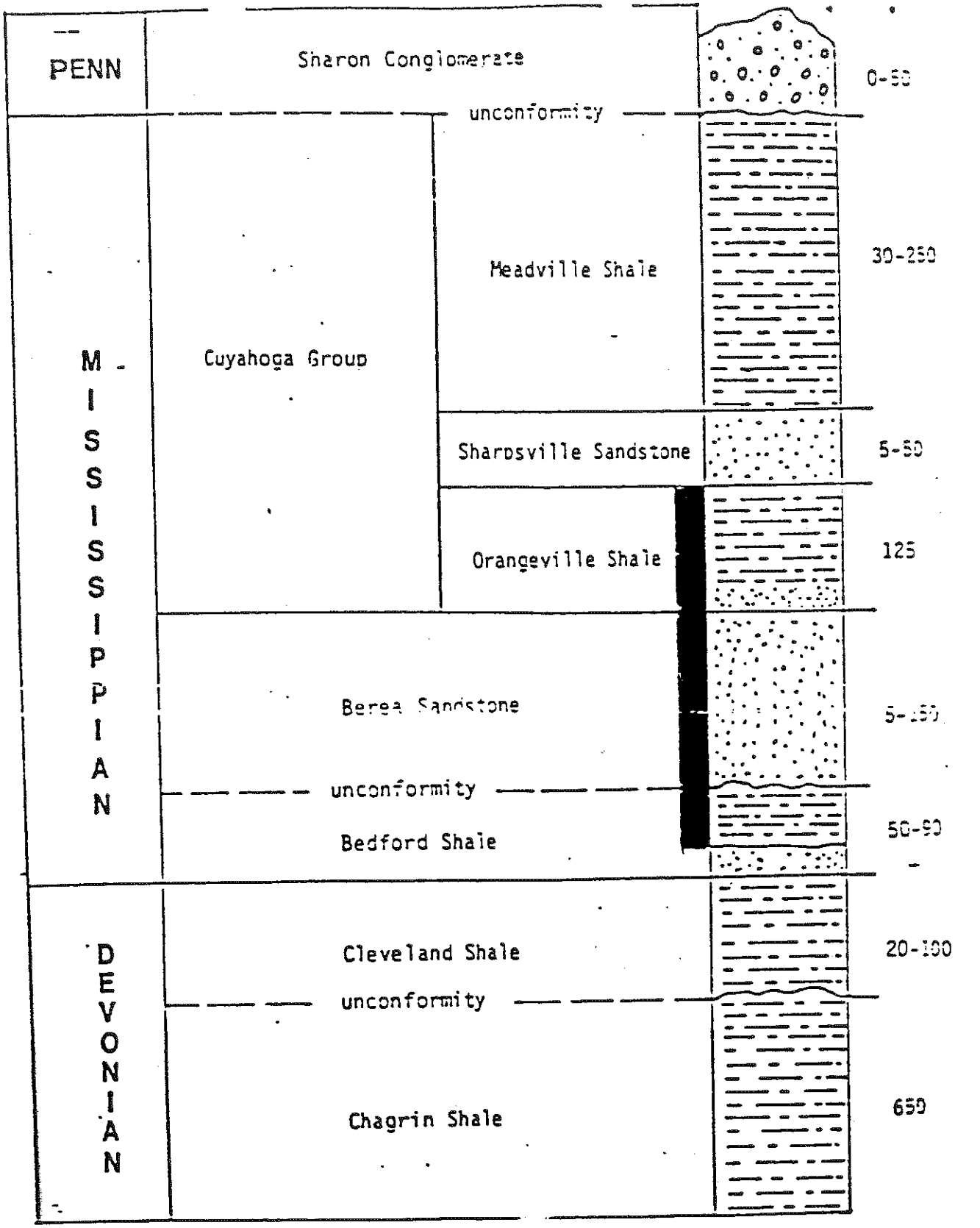
INORGANIC DETECTION LIMITS

Compound	Procedure	Detection Limits: Water (µg/L)	Detection Limits: Soil Sediment Sludge (mg/kg)
aluminum	ICP	200	40
antimony	furnace	60	2.4
arsenic	furnace	10	2
barium	ICP	200	40
beryllium	ICP	5	1
cadmium	ICP	5	1
calcium	ICP	5,000	1,000
chromium	ICP	10	2
cobalt	ICP	50	10
copper	ICP	25	5
iron	ICP	100	20
lead	furnace	5	1
magnesium	ICP	5,000	1,000
manganese	ICP	15	3
mercury	cold vapor	0.2	0.008
nickel	ICP	40	8
potassium	ICP	5,000	1,000
selenium	furnace	5	1
silver	ICP	10	2
sodium	ICP	5,000	1,000
thallium	furnace	10	2
tin	ICP	40	8
vanadium	ICP	50	10
zinc	ICP	20	4
cyanide	color	10	2

3767:1

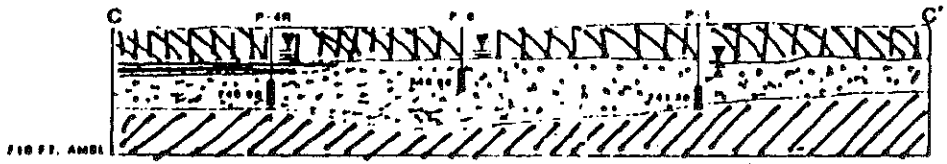
APPENDIX E

SOIL BORING LOGS OF THE SITE


PENN
Sharon Conglomerate
0-50
unconformity
MISSISSIPPIAN
Cuyahoga Group
Meadville Shale
30-250
Sharpsville Sandstone
5-50
Orangeville Shale
125
Berea Sandstone
5-150
unconformity
Bedford Shale
50-90
DEVONIAN
Cleveland Shale
20-100
unconformity
Chagrin Shale
650
UNITS ENCOUNTERED IN DRILLING PROGRAM
SITE BORING LOG
PARTIAL GEOLOGIC COLUMN FOR LORAIN COUNTY

SITE BORING LOG

GEOLOGIC CROSS-SECTION
GMC - FISHER GUIDE
ELYRIA, OHIO



LEGEND

- EXISTING MONITOR WELL
- SCREENED INTERVAL
- END OF BORING
- GLACIAL OVERBURDEN
- BEREA SANDSTONE
- BEDFORD SHALE
- CUYAHOGA SHALE

0 400 FEET

HORIZONTAL SCALE

VERTICAL EXAGGERATION 5X

APPENDIX F

WELL LOGS OF THE AREA OF THE SITE

PLEASE USE PEN OR TYPEWRITER
DO NOT USE INK.

Division of Water
1562 W. First Avenue
Columbus 12, Ohio

#1

LOG 1

County LORAIN Township ELYRIA Section of Township

Owner KRESS TALKING INC FOR ATLAS ELECTRIC Address 144 KENWOOD ST ELYRIA

Location of property MORRAY RIDGE Rd AT NYC RR

CONSTRUCTION DETAILS

Casing diameter 4 5/8 Length of casing

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 17 G.P.M. Duration of test 1/2 hrs.

Drawdown 30 ft. Date

Static level-depth to water 6' ft.

Quality (clear, cloudy, taste, odor) NO ODOR CLEARING

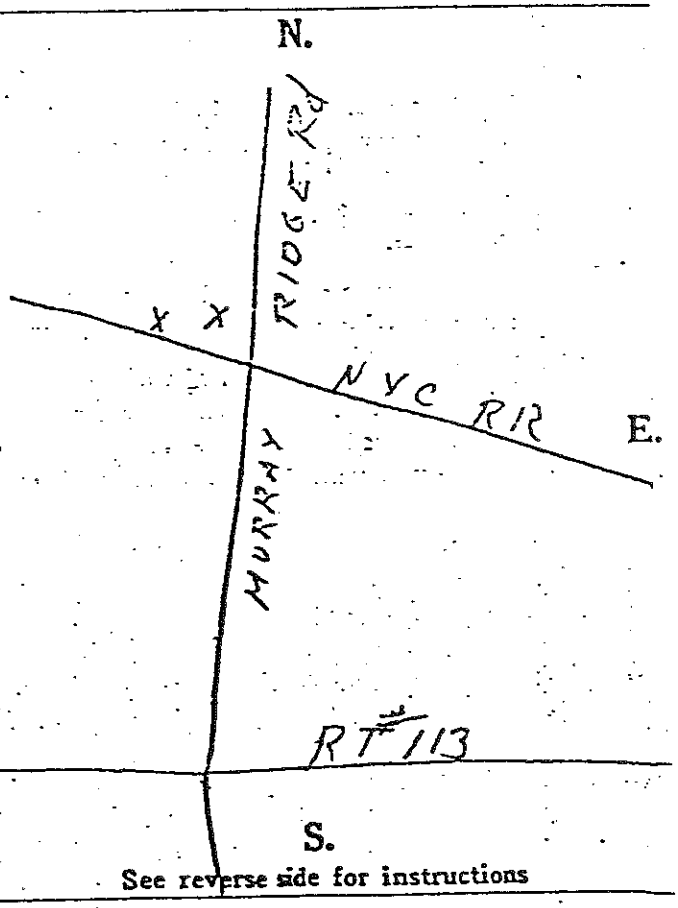
Pump installed by KRESS TALKINS

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
#1 YELLOW CLAY	0 Feet	12 Ft.
BLUE "	12	15
SAND & BROKEN SANDSTONE	15	35
LIGHT SHALE	35	37
RED "	37	40
WELL PULLED & PLUGGED APPOX 15 GPHOUR		
#2 YELLOW CLAY	0	10
BLUE "	10	14
SAND	14	15
SOLID SANDSTONE	15	30
LIGHT SHALE	30	32
RED "	32	34
WATER AT 25'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm PERU SCHUSTER Date 2-27-64

Address ELYRIA Signed R. Schuster

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

45 LOG 2

LOCATED

Nº 168336

County LORAIN Township ELYRIA Section or Township or Lot Number — 45

Owner ROBT. CRAWFORD Address 1114 MIDDLE AVE; ELYRIA, O

Location of property 2950 FT. N. INT. MURRAY RIDGE RD. & N.Y.C. R.R.

CONSTRUCTION DETAILS

Casing diameter 6 3/4 OD Length of casing 26 FT.

Type of screen — Length of screen —

Type of pump —

Capacity of pump —

Depth of pump setting —

PUMPING TEST

Pumping rate 15 G.P.M. Duration of test 2 hrs

Drawdown BOTTOM ft. Date 7/12/54

Developed capacity 15 GPM

Static level—depth to water 12 ft.

Pump installed by —

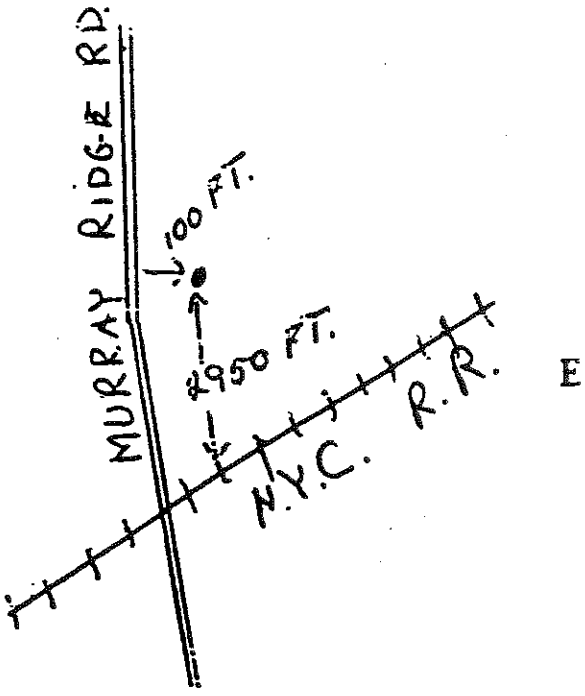
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Yellow Sandy ground	0	17
Grey Sand & gravel	17	26
Berea Sandstone	26	37
Grey slate & Broken Berea	37	40

Wellmakes
2 GPM 33-34
13 GPM 37-40

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Harry McClelland & Son Date 7/13/54

Address 398 N. Olive St Elyria, O. Signed William C. McClelland

45

151

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

LOCATED

No. 207447

LOG 3 51

County LORAIN Township ELYRIA Section of Township

Owner ART NIEDING Address 290 ADELBERT ST ELYRIA

Location of property 290 ADELBERT

CONSTRUCTION DETAILS

Casing diameter 5 5/9 Length of casing 19
Type of screen ____ Length of screen ____
Type of pump ____
Capacity of pump ____
Depth of pump setting ____
Date of completion 6-6-58

BAILING OR PUMPING TEST

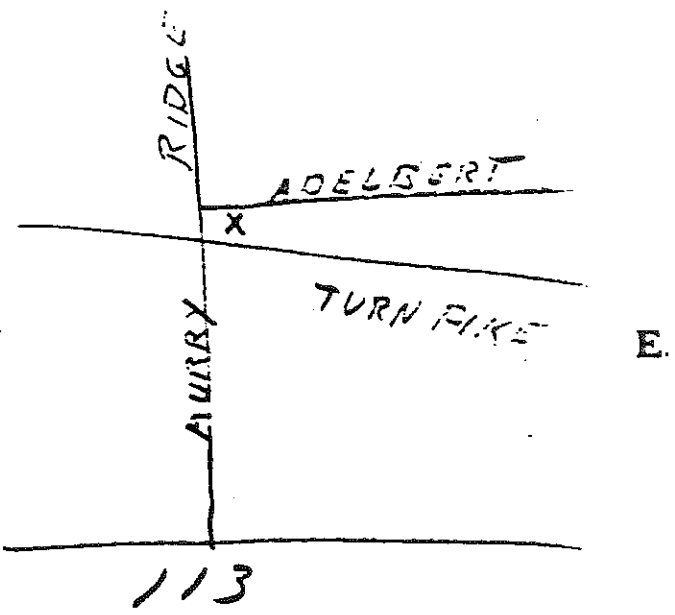
Pumping rate 12 G.P.M. Duration of test ____ hrs.
Drawdown ____ ft. Date ____
Developed capacity ____
Static level—depth to water 6 ft.
Pump installed by ____

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SAND & CLAY	0 Feet	14 Ft.
SAND	14	17
SANDSTONE	17	34
WATER AT 25'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm B SCHUSTER Date 6-6-58
Address ELYRIA O Signed [illegible]

51

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

NO CARBON PAPER NECESSARY- SELF-TRANSCRIBING

639628

- LOG 4

COUNTY Lorain TOWNSHIP Amherst SECTION OF TOWNSHIP

OWNER Darral Sauer ADDRESS 324 Foster Ave Elyria

LOCATION OF PROPERTY West Ridge Rd West Side South of R.R. tracks

CONSTRUCTION DETAILS

Casing diameter 6 Length of casing 28

Type of screen Length of screen

Type of pump Submersible

Capacity of pump 8 GPM

Depth of pump setting 26'

Date of completion 9-9-86

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 12 gpm Duration of test 12 hrs

Drawdown 20 ft Date 9-8-86

Static level (depth to water) 4 ft

Quality (clear) cloudy, taste, odor

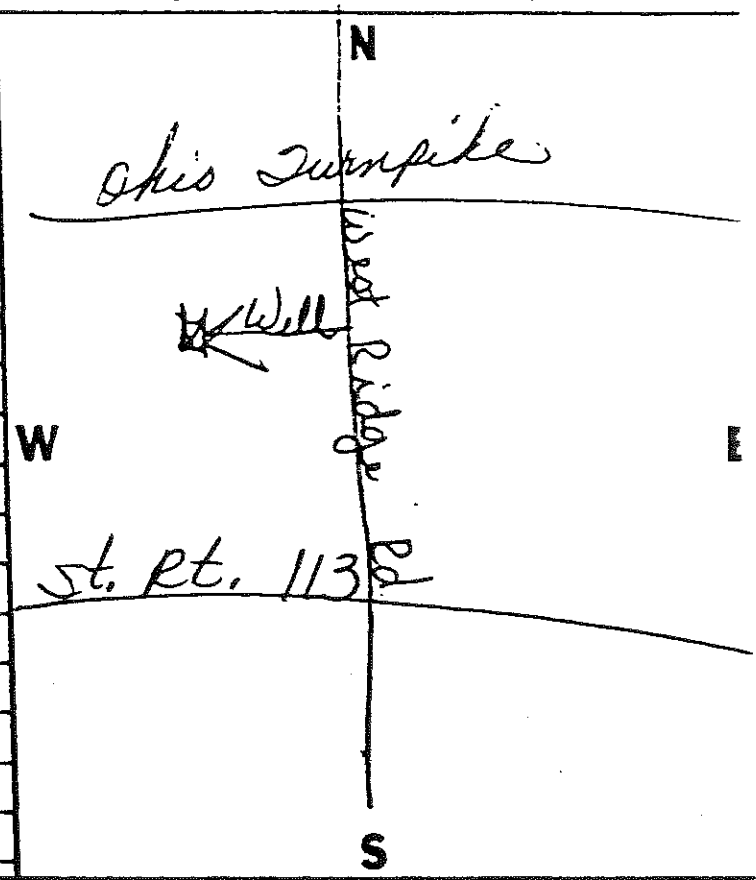
Pump installed by Jones Drilling

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top Soil	0 ft	1½ ft
Sandstone	1½	30
Water at 28 feet		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Jones Drilling DATE 9-9-86

ADDRESS Elyria Hts. Ohio SIGNED James W. Jones

*If additional space is needed to complete well log, use next consecutive numbered form.

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224

County Permit No. _____

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

533358

LOG 5

COUNTY LORAIN TOWNSHIP BURLINGTON SECTION OF TOWNSHIP _____

OWNER WILLARD HAMILTON ADDRESS 43641 STANG RD

LOCATION OF PROPERTY 43641 STANG RD

CONSTRUCTION DETAILS

Casing diameter 5 5/8 Length of casing _____

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate _____ gpm Duration of test _____ hrs

Drawdown _____ ft Date _____

Static level (depth to water) _____ ft

Quality (clear, cloudy, taste, odor) _____

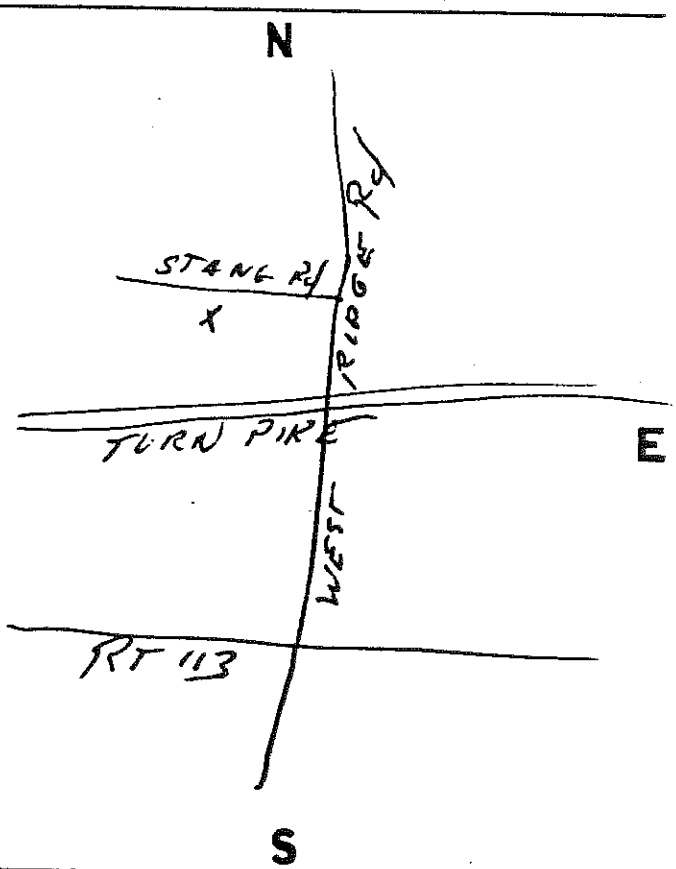
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
DRILLED WELL	0 ft	ft
DEEPER		
LIGHT SHALE	42	43
RED "	43	82
4" LINER 40-80'		
ONLY WATER IN STONE		
APEX 30'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM BERN SCHUSTER DATE 8-16-79

ADDRESS ELYRIA O SIGNED B Schuster

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK

LOG 6

No 371143

County LORAIN Township AMHERST Section of Township

Owner HATLER RIDDLE Address 4124 TALBOT LANE LORAIN

Location of property ON STANG Rd ½ MILE WEST OF WEST RIDGE Rd

CONSTRUCTION DETAILS

Casing diameter ..... Length of casing .....

Type of screen ..... Length of screen .....

Type of pump .....

Capacity of pump .....

Depth of pump setting .....

Date of completion .....

BAILING OR PUMPING TEST

Pumping Rate ..... G.P.M. Duration of test ..... hrs.

Drawdown ..... ft. Date .....

Static level-depth to water ..... ft.

Quality (clear, cloudy, taste, odor) .....

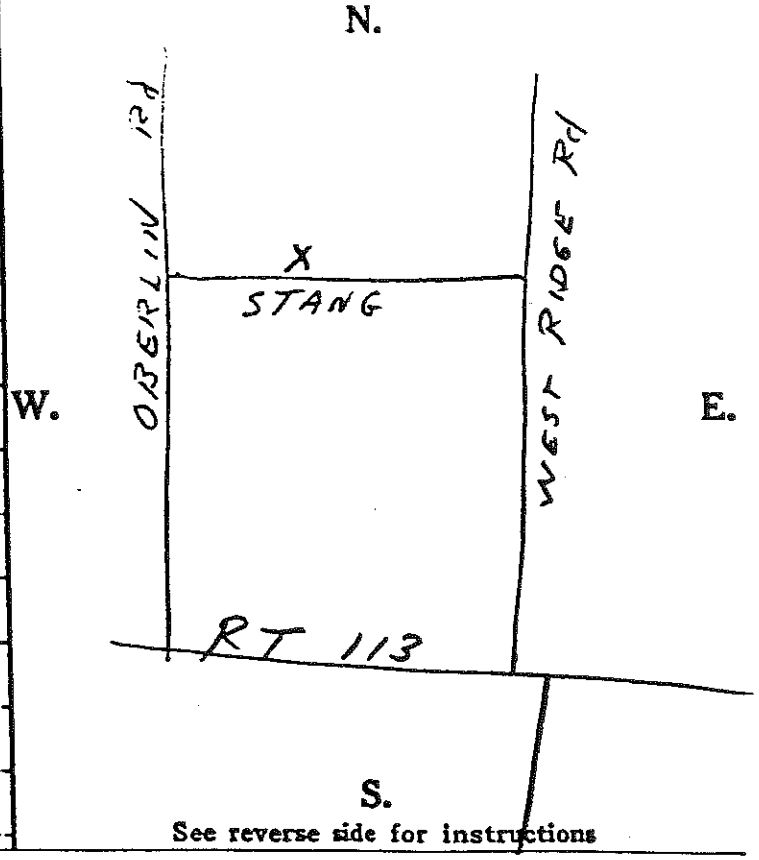
Pump installed by .....

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
YELLOW CLAY	0 Feet	12 Ft.
BLUE CLAY	12	17
SAND	17	19
MIXED RED & LIGHT SHALE	19	40
RED SHALE	40	45
ONLY WATER WAS IN SAND		
AT 17-19' APPOX 2GAL IN		
HOUR		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm BERN SCHUSTER Date 4-30-68

Address ELYRIA Signed B Schuster

*If additional space is needed to complete well log, use next consecutive numbered form.

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WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

LOG 7

No 313903

County LORAIN Township CARLISLE Section of Township

Owner DONALD E JACKSON Address RUSSIA Rd Rd ELYRIA

Location of property OFF RT 20 1 MILE WEST ON RUSSIA Rd

CONSTRUCTION DETAILS

Casing diameter 5 5/8 Length of casing 22

Type of screen NONE Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 40 G.P.M. Duration of test hrs.

Drawdown 15 ft. Date

Static level-depth to water 8 1/2 ft.

Quality (clear, cloudy, taste, odor) NO ODOR

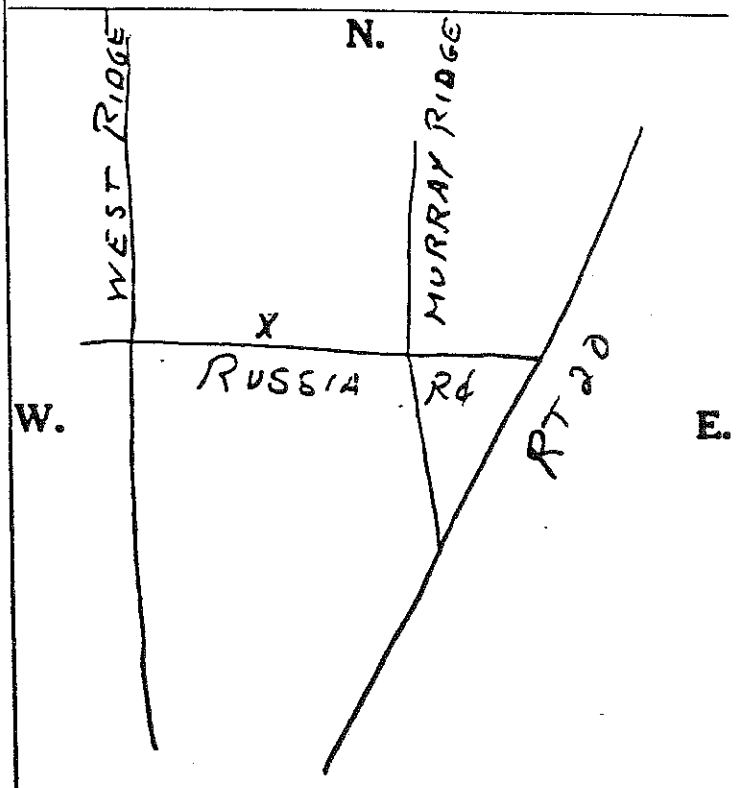
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SAND & GRAVEL	0 Feet	14 Ft.
BROKEN STONE	14	20
SAND STONE	20	40
WATER APPOX 26' & 37'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm BERN SCHUSTER Date 5-22-64

Address ELYRIA Signed B Schuster

(121)

U.S. ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL ENFORCEMENT SUPPORT AT
HAZARDOUS WASTE SITES

TES IV
CONTRACT NO. 68-01-7351
WORK ASSIGNMENT NO. 189

GMC FISHER
ELYRIA, OHIO

RCRA FACILITY ASSESSMENT
DATA EVALUATION REPORT

EPA REGION V

JACOBS ENGINEERING GROUP INC.
PROJECT NUMBER: 05-B189-00

PREPARED BY:
METCALF AND EDDY, INC.

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1.0 INTRODUCTION

The TES Contractor was given the task of conducting the Sampling Visit (SV) phase of a RCRA Facility Assessment (RFA) at the GMC Fisher Guide Division (GMC) facility (EPA ID # OHD 004 201 091) located at 1400 Lowell Street in Elyria, Ohio. The U.S. EPA has completed both the Preliminary Review (PR) and Visual Site Inspection (VSI) portions of the RFA. The objective of the SV was to collect soil and surface water samples for analysis to determine if a release of hazardous constituents has occurred or is occurring from three Solid Waste Management Units (SWMU's) at GMC. Both a Work Plan and Sampling Plan were submitted to and approved by the EPA prior to the TES Contractor performing the work. All soil and surface water samples were analyzed for total metals and cyanide whereas selected samples were analyzed for volatile and/or extractable organics. The results of the soil and surface water analyses are presented in this report and will be used to determine the need for the facility to perform a RCRA Facility Investigation (RFI).

The GMC facility manufactures automotive component parts. These parts include assorted plastic and metal hardware; plastic trim; urethane foam seat backs, cushions, and arm rests. The manufacturing processes involved are machining, stamping, forming, and welding of metal parts, metal coating, painting, thermoforming and injection molding of thermoplastic parts, and foam molding.

Wastes produced at the facility include dewatered metal hydroxide wastewater treatment sludge (F006); waste paints, cleaners, and solvents (F001, F002); and toluene diisocyanate (D003). The SWMU's at the facility include three past disposal areas: a Solid Waste Landfill, an Open Burning Field, and a Surface Impoundment. These three units were investigated during this RFA to identify their potential for and/or evidence of releases. The work was conducted by the TES IV Contractor pursuant to U.S. EPA Region V Work Assignment Number 189.

2.0 SAMPLING VISIT REVIEW

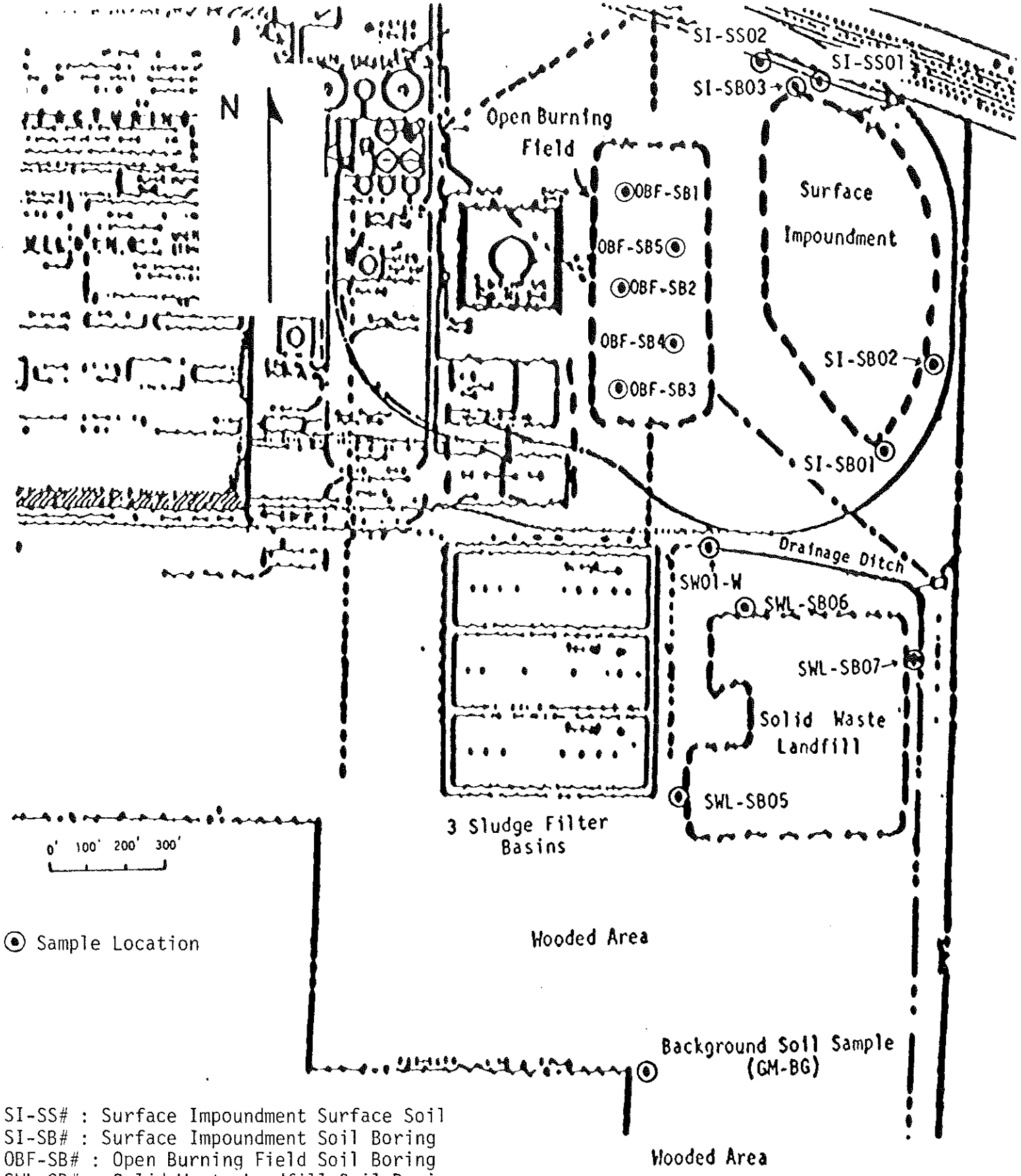
Sampling at the GMC facility began on Monday, August 24, 1987, and was completed on Wednesday, August 26, 1987. The TES Contractor sampling team consisted of Charlie Anderson (until Tuesday afternoon), Tom Anderson, and Ritu Chaudhari, all of Metcalf & Eddy, Inc.. Irene Horner of the U.S. EPA joined the TES Contractor during sampling for observation and to aid in making field decisions. All field decisions made which resulted in changes to the original sampling plan were agreed upon by all four members of the sampling team.

The TES Contractor met with Tom Applegate of GMC upon arrival at the facility to discuss the objectives of the site activities and locations to be sampled. Mr. Applegate was also asked about a water supply for decontamination, where to set up the decontamination station, the presence of gas lines through the work area, and what times were acceptable to be on-site. GMC notified the TES Contractor that they wanted to split all samples that were taken.

2.1 Sampling Locations/Deviations from Original Plan

Figure 2.1 shows the actual locations of all soil and surface waste samples that were taken during the sampling visit. Table 2.1 provides a listing of these samples, including duplicates.

The Sampling Plan stated that the TES Contractor would collect five soil boring samples from the Open Burning Field, four soil boring samples each from the perimeters around both the Surface Impoundment and Solid Waste Landfill, two "background" soil boring samples, and one surface water sample. However, as the TES Contractors walked the perimeter of the Surface Impoundment, they noted areas of surface runoff along the access road on the north side of the



SI-SS# : Surface Impoundment Surface Soil
SI-SB# : Surface Impoundment Soil Boring
OBF-SB# : Open Burning Field Soil Boring
SWL-SB# : Solid Waste Landfill Soil Boring
SW#-W : Surface Water

Figure 2.1 Locations of Soil and Surface Water Samples Collected at GMC Elyria.

TABLE 2.1
SUMMARY OF SAMPLING LOCATIONS AT GMC ELYRIA

M&E SAMPLE NO.	SAMPLE LOCATION	MEDIA	SAMPLING METHOD	ANALYTICAL CONSTITUENTS
GM-SI-SB01	Surface Impoundment	Soil	Split Spoon	Task 1 & 2 Metals, Cyanide
GM-SI-SB02	Surface Impoundment	Soil	Split Spoon	
GM-SI-SB02-DUP	Surface Impoundment	Soil	Split Spoon	
GM-SI-SB03	Surface Impoundment	Soil	Split Spoon	
GM-OBF-SB1	Open Burning Field	Soil	Split Spoon	Task 1 & 2 Metals, Extractable Organics, Cyanide
GM-OBF-SB2	Open Burning Field	Soil	Split Spoon	
GM-OBF-SB3	Open Burning Field	Soil	Split Spoon	
GM-OBF-SB3-DUP	Open Burning Field	Soil	Split Spoon	
GM-OBF-SB4	Open Burning Field	Soil	Split Spoon	
GM-OBF-SB5	Open Burning Field	Soil	Split Spoon	
GM-SWL-SB05	Solid Waste Landfill	Soil	Split Spoon	Task 1 & 2 Metals, Volatile Organics, Cyanide
GM-SWL-SB06	Solid Waste Landfill	Soil	Split Spoon	
GM-SWL-SB07	Solid Waste Landfill	Soil	Split Spoon	
GM-SWL-SB07-DUP	Solid Waste Landfill	Soil	Split Spoon	
GM-SI-SS01	N. of Surface Impoundment	Soil	Grab	Task 1 & 2 Metals, Cyanide
GM-SI-SS02	N. of Surface Impoundment	Soil	Grab	
GM-BG	S. of Solid Waste Landfill	Soil	Split Spoon	Task 1 & 2 Metals, Cyanide Volatile and Extractable Organics
GM-SW01-W	Drainage Ditch	Water	Grab	Task 1 & 2 Metals, Cyanide Volatile and Extractable Organics
GM-SW01-W-DUP	Drainage Ditch	Water	Grab	

Surface Impoundment near a fence. Bright blue contaminant was present in several of the runoff channels, some in trace amounts. The contaminant was located about 2-4 inches below ground surface. Upon discovery of the runoff channels, the TES Contractor decided to obtain a surface soil sample at two locations along the access road and substitute these two samples for two of the soil boring locations in the Sampling Plan. One soil boring sample was eliminated each from the Surface Impoundment and the Solid Waste Landfill, which left three samples to be taken at each of these two units. Also, only one background soil boring sample was taken, not two as stated in the Sampling Plan.

Other deviations from the Sampling Plan included boring to a total depth of one and a half feet at each location sampled in the Open Burning Field, not three feet as originally stated. Upon conferring with Tom Applegate of GMC, the stakes that delineated the boundary of the Open Burning Field were moved 100 feet due east. This lined up the boundaries more accurately with the Open Burning Field boundaries on Tom Applegate's facility map. Also, samples were not obtained from the exact locations surrounding the Surface Impoundment as shown in the Sampling Plan. The first soil sample (GM-SI-SB01) was obtained at a location about halfway between locations SB-4 and SB-5 in the Sampling Plan. The second soil boring (GM-SI-SB02) was sampled at a location about 40-50 feet south of SB-3 in the Sampling Plan.

2.2 Solid Waste Landfill

Efforts to establish the boundary around the Solid Waste Landfill failed during previous site visits. Thus, investigatory borings were made to verify the boundary using a small, truck-mounted rig and stainless steel split-spoon samplers. The boundary around the Solid Waste Landfill was determined by boring in the landfill to identify the sludge, and boring at locations away from the landfill until a hole did not indicate the presence of sludge. To indicate the sample location, a stake was placed 5 feet from the "clean" boring in a direction away from the landfill. Once a sampling location was determined, samples were taken in 2-foot intervals with a stainless steel split-spoon. Samples were taken either from the interval that showed visible signs of contamination or from the water-bearing interval if contamination was not detected. The samples obtained from locations around the landfill were from the water-bearing intervals from 7.5 to 9.5 feet for GM-SWL-SB05, from 6 to 8 feet for GM-SWL-SB06, and from 8 to 10 feet for GM-SWL-SB07. A duplicate sample was taken from GM-SWL-SB07.

2.3 Surface Impoundment

The boundary around the Surface Impoundment was determined on May 15, 1987 during a site visit. During the SV, samples were taken using a stainless steel split-spoon from intervals that showed visible signs of contamination. Contamination was observed in the 0 to 2 foot intervals for borings GM-SI-SB01 and SB02, and in the 2 to 4 foot interval for boring GM-SI-SB03. A duplicate sample was taken from GM-SI-SB02. Two surface soil samples were obtained from the runoff channels observed just north of the Surface Impoundment using a decontaminated stainless steel spoon and mixing bowl. Surface soil sample GM-SI-SS01 was taken at about 33 fence posts from the northeast corner of the fence whereas GM-SI-SS02 was taken at about fence post number 40.

2.4 Open Burning Field

The five soil samples from the Open Burning Field were obtained using a stainless steel split-spoon. Sampling depth at each location was 1.5 feet, therefore all samples taken were from the 0 to 1.5 foot interval. A duplicate sample was taken from GM-OBF-SB3.

2.5 Drainage Ditch

One surface water sample was taken from the drainage ditch at a location north of the Solid Waste Landfill. A clean 8 ounce sample bottle was used by the TES Contractor to scoop the water from the ditch and pour directly into the sample containers. A duplicate sample was also taken from this location. Weeds and plants around the ditch were discolored a reddish or rust color and the bottom of the ditch was covered with a dark brown sooty material. Water in the ditch had a yellowish tint to it.

2.6 Background Sample

The TES Contractor collected one background soil sample to establish background levels of the constituents of analysis. The background sample was not collected from the location recommended by Tom Applegate because the drill rig could not go into the heavily wooded areas. The location of the background sample was in a wooded area 35 feet east, not 100 feet as originally planned, of the first fence pole south-southwest of the landfill. A hollow stem auger was used to drill down five feet before collecting split-spoon samples at two foot intervals. The background sample was taken from the second split-spoon at an interval of 7 to 9 feet because the saturated sandstone had been penetrated.

3.0 DATA PRESENTATION AND EVALUATION

The data are presented in tabular form for those parameters found above detection limits. Some of the data are followed by symbols which are data qualifiers with the following meanings:

- * Indicates duplicate analysis was not within control limits.
- J Indicates an estimated value. Mass spectral data indicates presence of compound meeting identification criteria, but at levels less than the detection limit and greater than zero.
- B Indicates that the analyte was found in the associated blank as well as in the sample.
- E Indicates that the reported value must be considered an estimate because of the presence of interference.

The laboratory data received from EPA were not accompanied by any supporting quality assurance/quality control records. Without such QA/QC information and documentation, Metcalf & Eddy cannot independently verify the validity and quality of the data. Therefore, it has been assumed that all laboratory data utilized for this report is valid and credible.

3.1 Background Samples

One background soil sample was collected south of the investigation site. The sample (GM-BG) was analyzed for HSL metals, cyanide, volatile and extractable organics. The results are presented in Table 3.1.

One blank water sample (GM-SW01-W-BLK) was submitted for analysis of HSL metals, cyanide, volatile and extractable organics. The results are shown in Table 3.2. While a blank sample does not constitute a background sample, it is a satisfactory standard against which to compare analyte concentrations of water samples.

TABLE 3.1

BACKGROUND SOIL SAMPLE (GM-BG)
HSL METALS (mg/kg), HSL VOLATILE AND EXTRACTABLE ORGANICS (ug/kg)

PARAMETER	CONCENTRATION (dry weight)	
Aluminum	3530	*
Arsenic	12	
Barium	15	
Calcium	24,400	*
Iron	14,700	
Lead	8.5	
Magnesium	2890	
Manganese	193	*
Nickel	18	
Potassium	925	
Sodium	146	
Vanadium	9.0	
Zinc	11	
Methylene Chloride	760	B
Acetone	8800	B
Chloroform	300	
2-Butanone	8500	
Toluene	230	J
HSL Extractable Organics	Undetected	

TABLE 3.2

SURFACE WATER SAMPLES: HSL METALS AND ORGANICS (ug/l)

	SAMPLE NUMBER		
PARAMETER	GM-SW01-W	GM-SW01-DUP	GM-SW01-W-BLK
Calcium	275,000	NA	<310
Chromium	34	NA	<9
Copper	57	NA	<9
Cyanide	25 *	NA	<10
Iron	650	NA	<43
Magnesium	23,900	NA	<340
Manganese	432	NA	<4
Nickel	7860 *	NA	<25
Potassium	4,250,000	NA	<410
Sodium	674,000	NA	940
Zinc	88	NA	49
Phenol	4500	4600	<10
4-Methylphenol	10	20	<10
Benzoic Acid	200	210	<50
Methylene Chloride	5 J B	8 B	2 J B
Acetone	150 B	210 B	24
2-Butanone	35	33	<10
4-Methyl-2-Pentanone	13	13 J	<10

NA indicates "not analyzed".

3.1.1 Organic Compounds

The background soil sample does not contain any HSL base-neutral/acid extractable organics in excess of the stated detection limits which are 560 ug/kg for most of the compounds and 2800 ug/kg for a few of the phenols. However, several volatile organics do appear in considerable amounts. Methylene chloride, acetone, 2-butanone and toluene are common laboratory solvents commonly found in laboratory blanks. The analytical data package specifies that, in fact, methylene chloride and acetone were found in the laboratory blank. However, the concentrations of these two compounds as well as of 2-butanone found in the background soil sample are greater than can typically be attributed to laboratory contamination. Based on the data provided, it is concluded that the background soil sample is contaminated with the five volatile organic compounds mentioned in Table 3.1.

The blank water sample does not contain any extractable organics in excess of the detection limit of 10 ug/l (or 50 ug/l for some phenols). The only volatile organic measured above detection limit is acetone at 24 ug/l. This is a normal amount to be found in a blank and is most likely the result of laboratory contamination.

3.1.2 Metals

Two metals are found in the water blank in excess of detection limits. These are sodium and nickel at 940 ug/l and 49 ug/l, respectively. Without more information about laboratory QA/QC, it is not possible to determine whether these concentrations result from field sample handling procedures or laboratory contamination.

Environmental levels for seven metals have been published for the state of Ohio and for some counties in Ohio. The ranges of these metals in Ohio and in Medina County are shown in Table 3.3. No such information exists for Lorain County. The Medina County metals levels are presented because this is the nearest of the counties to the investigation site for which this information is available.

Comparison of Tables 3.1 and 3.3 shows that the background soil sample is not contaminated with chromium, copper, cadmium, lead, nickel, zinc or potassium. In fact, it contains less of these metals than was found in most soil samples collected from farm land in Medina County and in other parts of Ohio.

It is also possible to say that the background soil sample is not contaminated with antimony, cobalt, mercury, tin, or cyanide since these parameters were not detected in excess of their detection limits. It is not possible to determine whether the background soil sample is contaminated with respect to the remainder of the metals, which were detected at levels greater than their detection limits, because background levels of these metals have not, to the TES Contractor's knowledge, been published for Ohio.

3.2 Site Samples

Analytical results for the surface water sample is presented in Table 3.2. The analytical results for the soil samples are also presented in tabular form. Only those parameters are listed for which positive results were obtained for at least one sample of each sample type.

TABLE 3.3

BACKGROUND LEVELS OF HEAVY METALS
IN OHIO FARM SOILS[a]

Total Metals	Range in mg/kg Medina County	Range in mg/kg Ohio
Chromium	4-9	4-23
Copper	11-37	11-37
Cadmium	<0.25-0.6	<0.25-2.9
Lead	11-39	9-39
Nickel	13-29	9-38
Zinc	54-95	47-138
Potassium	4200-8700	3900-10,500

[a] Logan, Terry J. and Robert H. Miller, Background Levels of Heavy Metals in Ohio Farm Soils, Research Circular 275, The Ohio State University Ohio Agricultural Research and Development Center, February 1983.

3.2.1 Surface Water Sample

The surface water sample (GM-SW01-W) contains nine metals and cyanide in excess of two times the detection limits. One metal, zinc, is found at less than two times the amount found in the water blank. Its concentration in the sample is not considered significant. The surface water sample must be considered contaminated with respect to the other nine metals and cyanide (see Table 3.2).

Seven organic compounds have been identified in the surface water sample, four of them at greater than two times the detection limits. The sample must be considered to be contaminated by phenol, benzoic acid, acetone, and 2-butanone. The detection of methylene chloride must be attributed to laboratory contamination as the concentration detected in the sample does not greatly exceed the amount found in the water blank. The presence of 4-methylphenol and 4-methyl-2-pentanone is considered real but not important because of their low concentrations (less than two times the detection limits).

3.2.2 Solid Waste Landfill Soil Samples

The data presented in Table 3.4 shows that many of the metals are present in the samples in concentrations greater than two times those at which they are present in the background soil sample. Using this as the criterion for determining the presence of contamination, Table 3.5 is a summary of which samples are considered to be contaminated by which metals. Because the background soil sample has lower concentrations of cadmium, chromium, copper, lead, nickel, potassium, and zinc than most Ohio farm soils, the above-stated criterion for contamination may overestimate the amount of contamination for these metals. When this is the case, Table 3.5 indicates such by parentheses around the word "contaminated".

The results for volatile organics are all less than the amounts found in the background soil sample. This indicates that the Surface Waste Landfill soils have not been contaminated above local background levels with volatile organics.

3.2.3 Surface Impoundment Soil Samples

The data presented in Table 3.6 shows that many of the metals are present in the samples in concentrations greater than two times those at which they are present in the background soil sample. Using this as the criterion for determining the presence of contamination, Table 3.7 is a summary of which samples are contaminated by which metals. Because the background soil sample has lower concentrations of cadmium, chromium, copper, lead, nickel, potassium and zinc than most Ohio farm soils, the above stated criterion for contamination may overestimate the amount of contamination for these metals. When this is the case, Table 3.7 indicates such by parentheses around the word "contaminated".

3.2.4 Open Burning Field Soil Samples

The data presented in Table 3.8 shows that many of the metals are present in the samples in concentrations greater than two times those at which they are present in the background soil sample. Using this as the criterion for determining the presence of contamination, Table 3.9 is a summary of which samples are contaminated by which metals. Because the background soil sample has lower concentrations of cadmium, chromium, copper, lead, nickel, potassium and zinc than most Ohio farm soils, the above stated criterion for contamination may overestimate the amount of contamination for

TABLE 3.4
SOLID WASTE LANDFILL SAMPLES
HSL METALS (mg/kg) AND VOLATILE ORGANICS (ug/kg)

	SAMPLE NUMBER							
PARAMETER	GM-SWL-SB05		GM-SWL-SB06		GM-SWL-SB07		GM-SWL-SB07-DUP	
Aluminum	7030	*	11,900	*	7080	*	NA	
Arsenic	<5.6		12		<5.9		NA	
Barium	43		67		88		NA	
Calcium	9020	*	47,500	*	43,600	*	NA	
Chromium	11		15		15		NA	
Cobalt	12		15		17		NA	
Copper	<5.1	E	8.3	E	20	E	NA	
Iron	25,500		26,800		38,500		NA	
Lead	19		14		13		NA	
Magnesium	4020		7650		8820		NA	
Manganese	258	*	208	*	1010	*	NA	
Nickel	37		45		60		NA	
Potassium	1040		1930		1420		NA	
Vanadium	13		13		18		NA	
Zinc	47		62		92		NA	
Methylene Chloride	3	J B	13	J B	6	B	9	J B
Acetone	200		660		260		690	
2-Butanone	40		<38		42		180	

NA indicates "not analyzed"

TABLE 3.5

CONTAMINANTS PRESENT IN SOLID WASTE LANDFILL SOIL SAMPLES*

	SAMPLE NUMBER		
PARAMETER	GM-SWL-SB05	GM-SWL-SB06	GM-SWL-SB07
Aluminum	---	Contaminated	---
Barium	Contaminated	Contaminated	Contaminated
Chromium	(Contaminated)	(Contaminated)	(Contaminated)
Iron	---	---	Contaminated
Lead	(Contaminated)	---	---
Magnesium	---	Contaminated	Contaminated
Manganese	---	---	Contaminated
Nickel	(Contaminated)	(Contaminated)	Contaminated
Potassium	---	(Contaminated)	---
Vanadium	---	---	Contaminated
Zinc	(Contaminated)	(Contaminated)	(Contaminated)

* Parentheses indicate criterion for contamination (2X background) may overestimate contamination with selected metals because background sample has lower concentrations than most Ohio farm soils.

TABLE 3.6
SURFACE IMPOUNDMENT SOIL SAMPLES
HSL METALS (mg/kg)[a]

PARAMETER	SAMPLE NUMBER					
	GM-SI-SB01	GM-SI-SB02	GM-SI-SB02-DUP	GM-SI-SB03	GM-SI-SS01	GM-SI-SS02
Aluminum	16,500 *	15,100 *	18,700 *	13,800 *	15,900 *	11,100 *
Antimony	<34	<33	<33	<30	434	377
Arsenic	15	17	17	10	19	26
Barium	74	81	93	103	<25	<22
Calcium	39,100 *	8440 *	8350 *	15,500 *	117,000 *	91,600 *
Chromium	4890	542	464	782	39,200	31,700
Cobalt	15	<13	<13	<12	39	30
Copper	1660 E	133 E	105 E	146 E	17,000 E	13,800 E
Cyanide	503	<6.5	<6.6	<6.0	<11	<9.4
Iron	29,000	25,200	26,500	27,700	18,900	10,400
Lead	26	23	23	22	156	144
Magnesium	3260	3200	3940	3540	4450	2680
Manganese	308 *	101 *	112 *	540 *	590 *	138 *
Mercury	0.2	<0.13	<0.13	<0.12	1.1	1.1
Nickel	2690	1300	861	434	19,800	17,400
Potassium	1590	1440	1880	906	1060	516
Sodium	194	248	256	<150	379	<230
Tin	<25	<25	<25	<23	65	54
Vanadium	23	19	19	23	39	22
Zinc	614	141	128	472	3380	2730

[a] GM-SI-SB# indicates soil boring sample
GM-SI-SS# indicates surface soil sample

TABLE 3.7
CONTAMINANTS PRESENT IN SURFACE IMPOUNDMENT SOIL SAMPLES*

	SAMPLE NUMBER				
PARAMETER	GM-SI-SB01	GM-SI-SB02	GM-SI-SB03	GM-SI-SS01	GM-SI-SS02
Aluminum	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Antimony	---	---	---	Contaminated	Contaminated
Arsenic	---	---	---	---	Contaminated
Barium	Contaminated	Contaminated	Contaminated	---	---
Calcium	---	---	---	Contaminated	Contaminated
Chromium	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Cobalt	---	---	---	Contaminated	Contaminated
Copper	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Cyanide	Contaminated	---	---	---	---
Lead	(Contaminated)	(Contaminated)	(Contaminated)	Contaminated	Contaminated
Manganese	Contaminated	---	---	Contaminated	---
Mercury	---	---	---	Contaminated	Contaminated
Nickel	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Sodium	---	---	---	Contaminated	---
Tin	---	---	---	Contaminated	Contaminated
Vanadium	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Zinc	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated

* Parentheses indicate criterion for contamination (2X background) may overestimate contamination with selected metals because background sample has lower concentrations than most Ohio farm soils.

TABLE 3.8
OPEN BURNING FIELD SOIL SAMPLES
HSL METALS (mg/kg)

PARAMETER	SAMPLE NUMBER GM-OBF-SB1	GM-OBF-SB2	GM-OBF-SB3	GM-OBF-SB4	GM-OBF-SB5
Aluminum	15,500 *	12,100 *	10,900 *	12,800 *	15,300 *
Arsenic	12	15	14	13	8.9
Barium	159	135	149	137	168
Beryllium	2.9	<1.2	<1.1	<1.3	<1.2
Calcium	41,500 *	14,900 *	44,500 *	10,500 *	67,500 *
Chromium	77	194	287	1010	1130
Cobalt	<12	14	14	<13	<12
Copper	29 E	111 E	40 E	237 E	97 E
Cyanide	<5.9	<5.8	114	<6.5	<6.2
Iron	26,400	32,900	53,400	31,100	70,500
Lead	16	28	21	28	21
Magnesium	8840	5100	11,200	3490	34,200
Manganese	1150 *	1700 *	4310 *	490 *	29,000 *
Nickel	74	172	52	488	174
Potassium	1180	1170	855	1180	1630
Sodium	375	313	<140	247	357
Vanadium	25	30	90	28	90
Zinc	266	352	199	206	738

TABLE 3.9
CONTAMINANTS PRESENT IN OPEN BURNING FIELD SOIL SAMPLES*

	SAMPLE NUMBER				
PARAMETER	GM-OBF-SB1	GM-OBF-SB2	GM-OBF-SB3	GM-OBF-SB4	GM-OBF-SB5
Aluminum	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Barium	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Beryllium	Contaminated	---	---	---	---
Calcium	---	---	---	---	Contaminated
Chromium	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Copper	(Contaminated)	Contaminated	(Contaminated)	Contaminated	Contaminated
Cyanide	---	---	Contaminated	---	---
Iron	---	Contaminated	Contaminated	Contaminated	Contaminated
Lead	---	Contaminated	Contaminated	Contaminated	Contaminated
Magnesium	Contaminated	Contaminated	Contaminated	---	Contaminated
Manganese	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Nickel	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Sodium	Contaminated	Contaminated	---	---	Contaminated
Vanadium	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated
Zinc	Contaminated	Contaminated	Contaminated	Contaminated	Contaminated

* Parentheses indicate criterion for contamination (2X background) may overestimate contamination with selected metals because background sample has lower concentrations than most Ohio farm soils.

these metals. When this is the case, Table 3.9 indicates such by parentheses around the word "contaminated".

The results for extractable organics found in these samples must be considered less than quantitative. Table 3.10 shows that the positively identified compounds are present at less than detection limits with only two exceptions. Using the criteria for contamination that a compound must be present at two or more times the detection limit, these samples cannot be considered contaminated with respect to extractable compounds. However, a more qualitative assessment of the data would indicate that these soils are indeed contaminated to some degree. Most of the compounds detected are part of the same group of compounds: polynuclear aromatic hydrocarbons. The consistency with which these compounds appear in these samples (except GM-OBF-SB4) indicates that total polynuclear aromatic hydrocarbon contamination exists at this site. These compounds are not detected at all in the background soil sample nor are they naturally occurring compounds at even the lowest concentrations.

4.0 DISCUSSION

One problem in assessing contamination of samples from this site is that the background soil sample is so grossly contaminated with volatile organics. Because these compounds appear at much lower concentrations, if at all, in the site samples, it would appear that the contamination affecting the background soil sample is localized and not affecting the site sample. Nonetheless, the contamination of the background sample with volatile organics makes it of dubious value as a point of comparison for these compounds for the site soil samples.

The one water sample is contaminated with phenol, benzoic acid and with lesser amounts of ketones. The largest amount of contamination is by phenol, though this compound was not detected in any of the soil samples. There is some ketone contamination in the Solid Waste Landfill samples, though the poor duplication for both acetone and 2-butanone (compare results for GM-SWL-SB07 and GM-SWL-SB07-DUP in Table 3.4) shows that the results must be considered to be less than quantitative.

Organics contamination of the soil samples is not significant except in those from the Open Burning Field. These samples consistently show contamination by numerous polynuclear aromatic hydrocarbons. Because the levels detected are mostly less than detection limits, it is not wise to pay too much attention to the concentrations reported in Table 3.10. Therefore, it is not possible to say if contamination within the Open Burning Field shows any trend with location in the field.

Metals contamination in the Solid Waste Landfill appears to be minimal, whereas in the Surface Impoundment and the Open Burning Field it is substantial. Surface soil samples obtained just north of the Surface Impoundment (GM-SI-SS01 and GM-SI-SS02) show the most extreme contamination for copper, chromium, nickel, tin, zinc, and antimony.

In conclusion, this site displays considerable heavy metal and phenol contamination, though contamination by these compounds is not at all uniform from one part of the site to another.

TABLE 3.10
OPEN BURNING FIELD SOIL SAMPLES
HSL EXTRACTABLE ORGANICS (ug/kg)

	SAMPLE NUMBER					
PARAMETER	GM-OBF-SB1	GM-OBF-SB2	GM-OBF-SB3	GM-OBF-SB3-DUP	GM-OBF-SB4	GM-OBF-SB5
2-Methylnaphthalene	<610	<580	17 J	<600	<660	<610
Acenaphthene	17 J	<580	95 J	<600	<660	<610
Dibenzofuran	<610	<580	59 J	<600	<660	<610
Diethylphthalate	<610	18 J	<590	16 J	<660	<610
Fluorene	<610	<580	110 J	<600	<660	8 J
Phenanthrene	160 J	62 J	770	80 J	<660	110 J
Anthracene	36 J	11 J	170 J	15 J	<660	23 J
Di-n-butylphthalate	<610	<580	<590	<600	<660	14 J
Fluoranthene	120 J	73 J	530 J	82 J	<660	110 J
Pyrene	150 J	94 J	700	95 J	<660	130 J
Benzo(a)anthracene	70 J	39 J	270 J	<600	<660	<610
Bis(2-ethylhexyl)phthalate	130 J	140 J	<590	140 J	<660	<610
Chrysene	<610	<580	260 J	<600	<660	<610
Benzo(b)fluoranthene	71 J	50 J	230 J	46 J	<660	62 J
Benzo(k)fluoranthene	41 J	31 J	170 J	37 J	<660	44 J
Benzo(a)pyrene	<610	<580	220 J	41 J	<660	62 J
Ideno(1,2,3-cd)pyrene	<610	<580	130 J	27 J	<660	<610
Dibenzo(a,h)anthracene	<610	<580	33 J	<600	<660	<610
Benzo(g,h,i)perylene	<610	<580	140 J	<600	<660	<610

DRAFT

ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL ENFORCEMENT SUPPORT AT
HAZARDOUS WASTE SITES

TES IV
CONTRACT #68-01-7351
WORK ASSIGNMENT NO. 189

GMC FISHER
RCRA FACILITY ASSESSMENT
Site Sampling Plan
EPA REGION 5

JACOBS ENGINEERING GROUP INC.
PROJECT NUMBER 05-B189-00

June 9, 1987

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1.0 OBJECTIVE

This sampling plan has been prepared in order to establish the proper collection of soil samples at the GMC Fisher Guide Division facility in Elyria, Ohio. These sampling activities are being conducted as part of a RCRA Facility Assessment (RFA) for the U.S. EPA - Region V. The objective is to collect evidence in order to determine whether a release of hazardous constituents has occurred from three past disposal areas.

2.0 GENERAL FACILITY INFORMATION

The GMC facility manufactures automotive component parts. These parts include assorted plastic and metal hardware; plastic trim; urethane foam seat backs, cushions and arm rests. The manufacturing processes involved are machining, stamping, forming and welding of metal parts, metal coating, painting, thermoforming and injection molding of thermoplastic parts, and foam molding.

Wastes produced at this facility include dewatered metal hydroxide wastewater treatment sludge (F006); waste paints, cleaners and solvents (F001, F002); and toluene diisocyanate (D003).

In July, 1984, GMC discontinued the majority of its electroplating operations, thus reducing the sludge loading of the wastewater treatment plant. The facility is in the process of closing three sludge dewatering impoundments.

The solid waste management units at the facility include three past disposal areas: an open burning field, a solid waste landfill, and a surface impoundment. These areas are the subjects of this RFA and are described below.

Open Burning Field

Directly east of the plant buildings, GMC used a field for the open burning of numerous wastes including hazardous and toxic substances. This field borders a contaminated well; however, it is not believed that this area contributed to the existing groundwater problem. Soil contamination is expected to occur in this area due to the antiquated waste disposal methods probably associated with it.

Solid Waste Landfill

GMC disposed of F006 sludge and unknown wastes into a landfill located east of the existing RCRA surface impoundments. The landfill is unlined and has no groundwater monitoring wells assigned to it. Cover soil has been placed on the landfill. The landfill is believed to primarily contain F006 sludge; however, GMC personnel have indicated that additional wastes were placed into the landfill as well.

Sludge Impoundment

An old F006 sludge impoundment exists east of the open burning field and contains wastes similar to those found in other regulated units. The impoundment is unlined and the exact dimensions of the unit are undefined. Cover soil has been placed on the waste in the impoundment. GMC personnel have expressed some doubt concerning the lateral extent of the unit with respect to the facility's property line.

3.0 WASTE UNIT BOUNDARIES

Prior to sampling, the lateral boundaries around each waste unit must be defined. This activity is to be carried out using information provided by a Visual Site Inspection (VSI) report and investigatory soil borings where practical.

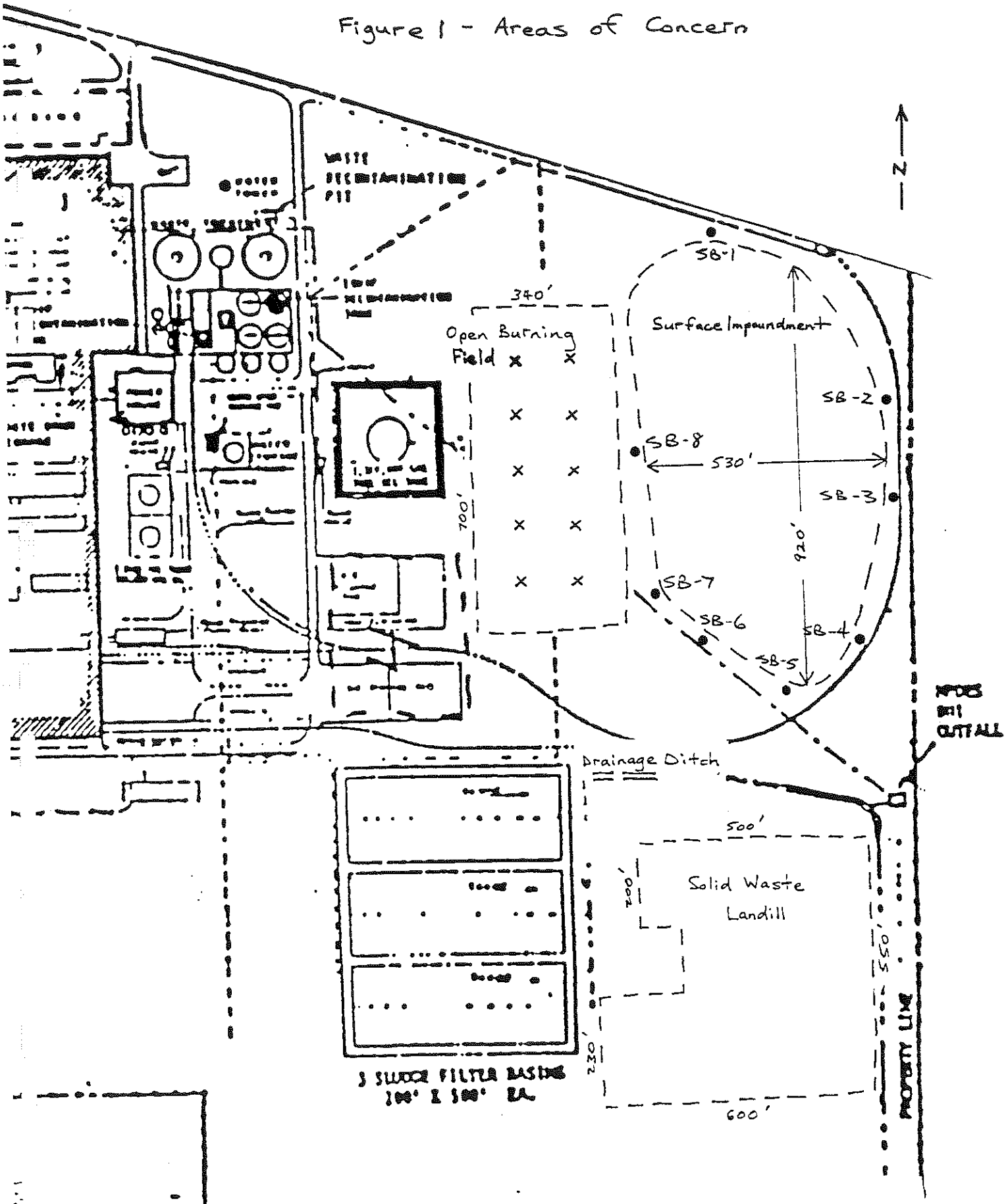
Surface Impoundment

The boundary around the surface impoundment was determined on May 15, 1987. The boundary was measured and staked according to dimensions shown on a map from an October, 1986 VSI report. A 2-man post hole auger was then used to drill holes into the soil in order to determine if F006 sludge was below the surface. The boundary was defined when one boring indicated the presence of sludge while a second boring did not. A stake was placed at a minimum distance of 4 feet from the clean boring in the direction away from the disposal unit. This was done to provide additional assurance that the staked area is clean and to eliminate the possibility that subsequent sampling activities would occur at the same location where the investigatory boring was made. The staked sampling locations, SB-1 through SB-8, are shown in Figure 1.

Solid Waste Landfill

Efforts during May failed to establish the boundary around the Solid Waste Landfill. Stakes have been placed to show the dimensions according to the VSI map. Investigatory borings using a 2-man post hole auger will be made at points around the unit in order to verify the boundary. If this effort fails, a small, truck-mounted rig will be used.

Figure 1 - Areas of Concern



Open Burning Field

The dimensions of the open burning field are solely defined by the VSI map. The definition of this unit includes the soil surface only and there is no way to visually distinguish the boundary.

4.0 SAMPLING LOCATIONS

Soil samples and one surface water sample will be obtained from "clean" areas in order to determine if hazardous constituents have been released from any of the past disposal areas.

After the waste boundaries have been defined for the landfill and the sludge impoundment, eight borings will be made around each area. The borings will be located on the clean side of the established boundary. Visual estimates will be made so that the spaces between each boring are approximately equal.

Using a small, truck-mounted drill rig, the hollow stem auger technique with stainless steel split spoon sampler will be utilized to collect a continuous sample over the full depth of each boring. One 2-foot segment from each boring will be saved for analysis. After driving the 2-foot long sampler through each successive segment of the boring, it will be retrieved and opened. The sample will be examined for visual evidence of contamination. Any sample which appears contaminated will be saved for analysis. This method of sampling will continue until the groundwater level is reached. This level is expected to be 8 - 11 feet in depth from the soil surface. If previous samples from any boring do not appear to be contaminated, the final sample which includes water-bearing soil will be saved for analysis.

After determining the waste boundary around the open burning area, a 2 x 5 grid will be laid out to define the exact locations of 10 borings, as shown in Figure 1. The overall dimensions of this sampling grid are 140 ft by 500 ft which results in a minimum of 125 ft between each boring. Using a small, truck-mounted drill rig, the hollow stem auger technique with stainless steel split spoon sampler will be utilized to sample the soil from the surface to three feet in depth. Both 1-1/2 foot segments will be separately composited and saved for analysis.

If the drainage ditch located north of the solid waste landfill is found to contain water, a surface water sample will be obtained.

5.0 SAMPLE HANDLING

Sample Documentation

Field personnel are responsible for identifying and labeling samples in an organized and consistent manner.

The soil borings (SB) and surface water (SW) samples will be labeled as follows:

Surface Impoundment	SB 1 - SB 8
Solid Waste Landfill	SB 9 - SB 16
Open Burning Field	SB 17 - SB 36
Surface Water Ditch	SW 1

Every sample will include the following information:

- Project number;
- Sample number;
- Sample description;

- Sampling data and time;
- Person obtaining the sample; and
- Method of sample preservation, if any.

Sampling procedures will be logged into a logbook, including sampling processes and chain of custody procedures in addition to the above information.

Equipment Decontamination

The procedure for decontamination of sampling equipment will be as follows:

- Wash with lab-grade detergent
- Rinse with clean tap water
- Rinse with deionized water
- Rinse with reagent-grade isopropanol
- Air dry on aluminum foil
- Wrap in aluminum foil until next use.

Analytical Requirements

All collected samples and the corresponding QA/QC samples will be analyzed by CLP Registered Laboratory. The soil and water samples will be analyzed for organic extractables, organic volatiles, pesticides/PCBs, cyanide, and Task 1 and 2 metals.

Samples must be placed in containers compatible with the intended analysis and properly preserved. Table 1 and Table 2 summarize the characteristics of the samples and various analytical parameters (sample container and preservation) associated with soil samples in the three areas and surface water samples, respectively.

Table 1
Soil Sample Information

Area	Conc	No. Sample	QA/QC Sample	Sample Container[1]	Depth (ft)	Preservative
			SOIL SAMPLES			
Extractable Organics						
Solid Waste Landfill	Med	8	1	9 - 8 oz glass jars	2 - 11	Ice, 4 C
Open Burning Field	Med	20	1	22 - 8 oz glass jars	0 - 3	Ice, 4 C
Volatile Organics						
Solid Waste Landfill	Med	8	1	Extractable sample suffices	2 - 11	Ice, 4 C
Pesticides/PCBs						
Solid Waste Landfill	Med	8	1	9 - 8 oz glass jars	2 - 11	Ice, 4 C
Open Burning Field	Med	20	2	22 - 8 oz glass jars	0 - 3	Ice, 4 C
Inorganic Analysis[2]						
Surface Impoundment	Med	8	1	9 - 8 oz glass jars	2 - 11	Ice, 4 C
Solid Waste Landfill	Med	8	1	9 - 8 oz glass jars	2 - 11	Ice, 4 C
Open Burning Field	Med	20	2	22 - 8 oz glass jars	0 - 3	Ice, 4 C

1 All 8-oz samples should be filled at least 3/4 full.
2 An 8-oz sample is sufficient for Task 1 and 2 Metals and Cyanide Analysis.

Table 2
Water Sample Information

Area	Conc	No. Sample	QA/QC Sample	Sample Container[1]	Preservative
SURFACE WATER SAMPLES					
Extractable Organics	Low	1	1	4 - 8 oz amber glass bottles	Ice to 4 C
Volatile Organics	Low [1]	1	1	4 - 40 ml glass bottles	Ice to 4 C
Pesticides/PCBs	Low	1	1	2 - 8 oz glass bottles	Ice to 4 C
Task 1 and 2 Metals	Low	1	1	2 - 1 liter HDPE	5 ml, 6N NaOH, Ice to 4 C

1 Volatile Organic Analysis samples should be taken so that no air is present in the sample.

Chain-of-Custody

The ability to demonstrate that samples have been obtained from the locations stated and that they have reached the laboratory without alteration is accomplished through chain-of-custody records. A chain-of-custody record will identify each sample and the individual responsible for sample collection, preparation, shipment and receipt.

Sample custody will be initiated by field personnel upon collection of samples. Documents specifically prepared for such purposes will be used for recording pertinent information about the type and numbers of samples collected and shipped for analysis.

The samples collected will first be brought to an on-site location for batching and paperwork checks. Labels and log information are checked to be sure there is no error in identification. Samples are packaged to prevent breakage or leakage, and labeled according to DOT regulations for transport by air as laboratory samples.

ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL ENFORCEMENT SUPPORT AT
HAZARDOUS WASTE SITES

TES IV
CONTRACT #68-01-7351
WORK ASSIGNMENT NO. 189

GMC FISHER
RCRA FACILITY ASSESSMENT
EPA REGION 5

JACOBS ENGINEERING GROUP INC.
PROJECT NUMBER 05-A005-189

APRIL 1, 1987

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1.0 INTRODUCTION

Under the TES IV contract, Metcalf & Eddy, Inc. (M&E) has been tasked to provide a RCRA Facility Assessment (RFA) to EPA Region V, for the GMC- Fisher Division facilities in Elyria, Ohio.

The RFA is the first stage in a three-stage RCRA corrective action program. Its purpose is to identify release(s)/potential release(s) that may require further investigation. Additional ivestigation of a facility is accomplished in the second stage, the RCRA Facility Investigation (RFI). The RFI is implemented to fully characterize the extent of releases. The third and final stage in the corrective action program is the determination and implementation of corrective action measures.

The purpose of the RFA is to obtain facility specific information in order to:

1. Identify and gather information of release(s)/potential release(s) of hazardous wastes/hazardous constituents from the facility;

2. Evaluate the regulated hazardous waste management units (HWMUs) and solid waste management units (SWMUs) and other areas of concern for release(s)/potential release(s) to all media including water, soil and air;

3. Make preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility; and

4. Screen from further investigation those regulated units or SWMUs that do not pose a threat to human health or the environment.

There are three main components of an RFA: 1) Preliminary Review, 2) Visual Site Inspection, and 3) Well Installation and Sampling Visit. The procedures for the conduct of an RFA are provided in the October 1986 RCRA Facility Assessment Guidance, and will not be detailed further in this workplan.

Background

The GMC Facility manufactures automotive component parts. Wastes produced at this facility include dewatered metal hydroxide wastewater treatment sludge (F006); waste paints, cleaners and solvents (F001, F002); and toluene diisocyanate (D003).

The dewatered metal hydroxide wastewater treatment sludge is generated in 3 sludge dewatering impoundments. Each impoundment is 200 feet wide and 500 feet long and enclosed by earthen berms.

The waste paint, cleaners and solvents are stored in 55 gallon drums. They are stored outside on a pad. The maximum capacity of the storage area is 9,000 gallons.

The toluene diisocyanate is actually non-reacted raw material that is used in urethane foam molding. The non-reacted wastes are placed in two open concrete tanks that measure 25 feet x 10 feet x4 feet, and are allowed to fully react. Water is added to aid in the reaction process. The maximum capacity of the treatment process is 110 gallons per day.

In July, 1984, GMC discontinued the majority of its electroplating operations, thus reducing the sludge loading of the wastewater treatment plant. The facility is in the process of closing the 3 sludge dewatering impoundments.

The solid waste management units at the facility consist of 3 past disposal areas. These units are the units in question regarding the potential for and/or evidence of releases.

For each area, the extent of the waste boundary needs to be determined using borings. After the waste boundary has been determined, angle borings will be taken and core samples analyzed to determine whether there is any evidence of a release. Area #1 and Area #2 will need approximately 8 borings each, for sampling, to a depth not to exceed 10 feet. Area #3 will need approximately 10 borings for sampling to a depth of about 3 feet. The soil samples will be analyzed for priority pollutants and total metals.

2.0 PROJECT APPROACH

This work plan has been developed to delineate the work scope and deliverables to EPA Region V for the conduct of an RFA at the GMC Fisher Division, Elyria, Ohio. This plan is based upon preliminary information provided by EPA. Changes in the scope of work and work schedule may be recommended upon the review of new information and data, and may require changes and/or additions to the scope of work of this work assignment by means of a work assignment amendment. Each activity to be performed during the RFA process at the above mentioned facility is described below.

Because a visual site inspection and sampling are planned, M&E personnel will need a letter of introduction from EPA for use at the facility. M&E personnel may also need access permission from the facility prior to site inspection and/or sampling activities. The development of a letter of introduction and site access will be coordinated with EPA.

Activity One: Prepare for Sampling Visit

In accordance with the RFA guidance and with EPA Region V policy, the TES Contractor prepare a site specific sampling plan for sampling activities at the facility. A one-day site visit will be made prior to developing the sampling plan to identify logistical requirements and other factors affecting selection of sampling locations. the TES Contractor will submit this document in draft form to the EPA facility Primary Contact for review and comments.

Activity Two: Prepare Final Site Sampling Plan

The TES Contractor will prepare a final facility specific sampling plan that incorporates EPA comments on the draft of this document. The TES Contractor will submit the plan in final form to the EPA facility Project Officer.

Activity Three: Conduct Site Sampling Investigation

The TES Contractor personnel will coordinate with the EPA Primary Contact for the facility and the laboratory to conduct site specific sampling activities at the facility. The TES Contractor will complete all applicable checklists as required in the RFA guidance.

Activity Four: Coordinate with Laboratory - Develop Plan for Sample Shipment and Analytical Work

The TES Contractor will prepare a brief work plan for sample shipment and analytical work.

If capacity is unavailable at the EPA Contract Laboratory or Region Laboratory, EPA will provide the TES Contractor with funding for analyses by an EPA-approved laboratory. If the Region or Contract Laboratory is used, they will provide ice chests, preservatives, field data sheets, sample labels, sample containers, and chain-of-custody sheets for use in sample collection and shipment. In addition, the EPA or Contract Laboratory will provide any needed sample blanks and spikes, and organic and inorganic traffic report forms.

Sample splits will be offered to the facility. However, the facility will be responsible for the procurement of their own sample containers.

Using the resources provided, samples will be shipped to the pre-designated laboratory. If necessary, the Region Laboratory will be assisted in preparation of the samples for distribution to other laboratories. Samples will be transported by the TES Contractor to the laboratories under chain-of-custody, with the samples iced to $4^{o}C$. If samples are shipped from the field to the laboratory by overnight carrier, samples will be shipped with the samples iced to $4^{o}C$, also under appropriate chain-of-custody.

The TES Contractor will evaluate and summarize all laboratory results.

In the event that the TES Contractor is involved in the selection of the laboratory, the number of hours alloted for the analyses of samples in the Scope of Work will be insufficient, and a change in the Scope of Work will be required.

Activity Five: Prepare Draft RFA Report

The draft RFA report will address the results of the sampling visit. The preliminary review and visual site inspection of the facility were previously performed by EPA. Any checklists set forth in the RFA guidance, as well as any other supporting material will be presented as appendices to the report. A draft report will be submitted to the EPA Primary Contact for comments prior to completion of this RFA. Due to possible delays in the receipt of analytical results from the laboratory, the draft RFA report may be submitted without the analytical results if it is considered appropriate by EPA.

Activity Six: Prepare Final RFA Report

EPA comments wll be incorporated on the draft RFA report into a final RFA report. This report will include all analytical results from samples collected during the sampling visit. A this final RFA report to will be submitted to the EPA Primary Contact.

3.0 DELIVERABLES

1. A draft sampling plan will be prepared and submitted to the EPA Primary Contact for review and comment.

2. After receiving EPA's comments, a final specific investigation sampling plan will be prepared and submitted to the EPA Primary contact. Sampling at the facility will not be performed until the final specific investigation sampling plan is accepted by the EPA Primary Contact.

3. Within 15 days following receipt of the Analytical data from the site sampling visit, the TES Contractor will prepare and submit a draft RFA report to the EPA Primary Contact. A summary of analytical results will be provided as soon as available.

8. Within 21 days following receipt of comments on the draft RFA report, as well as receipt of the final QA data from the visit from EPA, the TES Contractor will complete the RFA report and submit a final RFA report to the EPA Primary Contact.

4.0 WORK SCHEDULE

The anticipated schedule for the RFA at GMC-Fisher is presented below.

Item	Date
Submit Draft Sampling Plan	April 28
Receive EPA Comments on Draft Sampling Plan	May 5
Submit Final Sampling Plan	May 12
Receive EPA Approval of Sampling Plan	May 15
Complete Sampling	May 27

Receive Analytical Results from Laboratory and Telephone Report of Results to EPA Primary Contact	June 26
Submit Draft RFA Report	July 10
Receive EPA Comments on Draft RFA Report	July 24
Submit Final RFA Report	August 14

5.0 PERSONNEL

As requested in the Scope of Work, all M&E personnel that perform work on this project will have signed RCRA confidential business information (CBI) agreements.

Dean Geers - Regional Manager
Jacobs Engineering (312) 806-9119
Dennis DeNiro - Work Assignment Manager
Metcalf & Eddy (614) 436-5550

6.0 INTERVIEWS/SUBCONTRACTS/CONSULTANTS

At this time, it is not anticipated that any interviews or consultants will be required. A subcontractor will be selected, based on competitive pricing and availability compliant to the RFA work schedule, to perform drilling operations.

7.0 EXCEPTIONS TO THE ASSIGNMENT, ANTICIPATED PROBLEMS, OR SPECIAL REQUIREMENTS

At this time, no exception to the assignment, anticipated problems, or special requirements are foreseen.

8.0 QUALITY ASSURANCE

The Jacobs Quality Assurance Program has been specifically incorporated by reference into contract governing this work assignment. This work plan and all subsequent activities and outputs may correspondingly be the subject of a random audit pursuant to the QA program plan, and carried out by the Contract QA Officer. The audit results and any corrective action will be included in the Monthly Progress Report and Annual Report.

9.0 CONFLICT OF INTEREST

To the best of our knowledge, no personal or corporate conflict of interest exists for persons performing work under this work assignment.

10.0 COST ESTIMATES

The estimated costs for activities described in the workplan for the conduct of the RFA at this facility are set forth below. Costs have been developed which includes sampling activities and estimates of laboratory costs for sample analysis.

Costs for tracking budgets and preparing status reports are incurred by Jacobs for the duration of this assignment, until project closeout by EPA, regardless of the level of technical activities that occur.

		Estimate
a.1	Preparation of Work Plan/Sample Plan	24 hours
a.2	Site Visit and Sample Plan Development	40 hours
b.	Collection of Samples/Borings (Field Area 1 & 2: (2 people - 10 hours/day for 8 days) Field Area 3: (2 people - 8 hours/day for 2 days) (Office time and field contingency - 40 hours)	232 hours
c.	Preparation for Analysis of samples	32 hours
d.	Evaluation and Summary of Analysis and Preparation of Draft Report	72 hours
e.	Preparation of of Final Report	34 hours
	Total	434 hours

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 31 OCT 1986

SUBJECT: Visual Site Inspection - GMC Fisher Guide Division - Elyria Plant
OHD 004201091

FROM: Robert Swale, Geological Engineer
Ohio Technical Unit

TO: File

Date of Inspection: October 2, 1986 - 10:00 a.m.

Weather: Cloudy

EPA Participants: Robert Swale
Mary Logan
Kae Lee

GMC Fisher Participants: Philip Kienle
Tom Applegate

Solid Waste Management Units (SWMU's)

1. TDI Neutralization Tank
2. Outdoor Drum Storage Areas (2)
3. RCRA Regulated F006 Surface Impoundments (3)
4. Open Burning Field
5. F006 and Solid Waste Landfill (Pre-RCRA)
6. F006 Surface Impoundment (Pre-RCRA)

Summary

A Visual Site Inspection (VSI) was completed for GMC Fisher Guide Division - Elyria Plant as phase II of this facility's RCRA Facility Assessment (RFA).

An area east of the existing plant buildings was the center of interest with regard to the VSI. Four SWMU's including and Open Burning Area, an F006 Sludge Impoundment, an F006 Sludge and Solid Waste Landfill and a (now unused) product (solvent) storage area were the units posing the most interest with regards to corrective action measures charged by HSWA of 1984. Evidence points to a release having occurred from the product storage area due to contamination of a nearby monitoring well with organic solvents. (GMC is currently working with State personnel to remedy the situation.) However, this is considered to be a release from a SWMU and thus would put this facility up for corrective action measures.

The remaining units (the Open Burning Area, the F006 Impoundment and Landfill) have no documentation of releases. However, it must also be mentioned that none of the units have monitoring wells placed near them. I would propose that the presence of volatile organics in the groundwater provides us with evidence of a release. This evidence is adequate to justify issuance of a 3008(h) corrective action order and request GMC to complete a RCRA Facility Investigation (RFI) for the entire facility. According to status quo headquarters policy, evidence of a release into the groundwater from any unit would require the facility to complete a facility wide RIF. Any RIF would of course encompass groundwater sampling downgradient of the SWMU's identified earlier in this summary. If of course a 3008(h) order is not warranted, the facility would be required to address corrective action under 3004(u) and incorporate it into the post-closure permit.

Solid Waste Management Units

Tolulene Diisocyanate Tanks

Tolulene Diisocyanate (TDI) is the non-reacted form of urethane foam molding in automobile seats. GMC reacted unusable TDI in water contained in the above-mentioned tanks, thus rendering the TDI non-hazardous. The tanks are to be closed as hazardous waste treatment tanks under the facility's closure/post-closure plan. As part of the closure, the tanks are expected to be decontaminated, punctured and backfilled with soil.

Outdoor Drum Storage Areas (2)

Two outdoor drum storage areas - one previously used as a product (solvent) storage area and the other used for storage of waste materials produced within the plant. The product storage area was located near the railroad tracks and monitoring well P5. Monitor well P5 has been shown to be contaminated with approximately 350ppb of volatile organics. The source of this contamination is believed to be the product storage area (no longer existent). The hazardous waste drum storage area is used primarily for the temporary storage of TDI prior to disposal off-site. Judging from the condition of the area surrounding the pad and the pad itself, it is assumed that some spillage of waste has occurred, but proper closure practices should negate any further actions regarding the unit.

RCRA Regulated F006 Sludge Surface Impoundment

The RCRA regulated settlement ponds are located southeast of the plant buildings. The ponds are in the process of closure and will be replaced by a HSWA land disposal unit. According to the Part B application submitted for this facility, elevated levels of metals have been noticed in the groundwater within the latest sampling periods. Since the impoundments are closing, these levels of metals are further evidence that a 3008(h) order should be written for this facility.

Open Burning Field

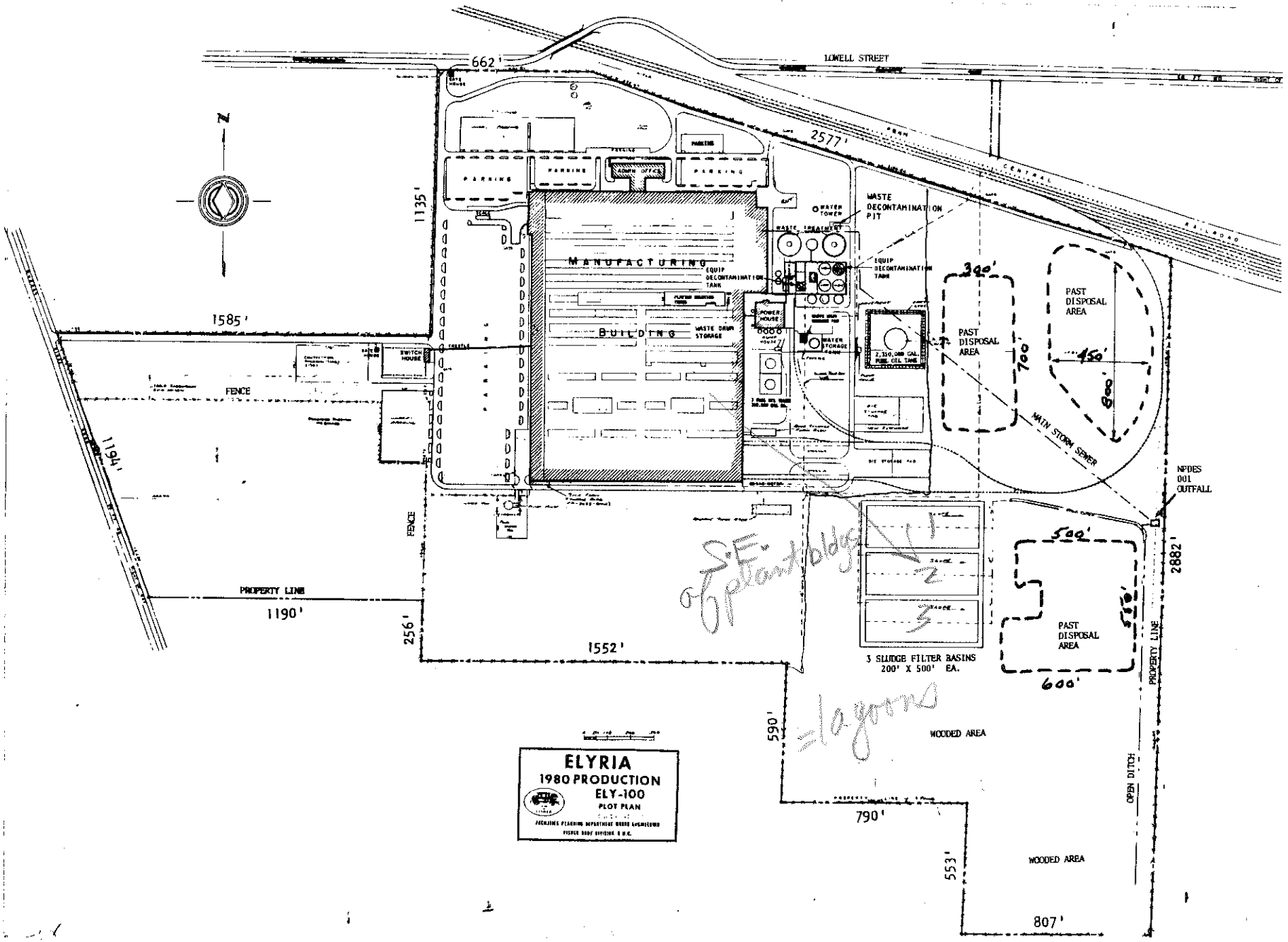
Directly east of the plant buildings, GMC used a field for the open burning of numerous wastes including hazardous and toxic substances. This field borders the contaminated well (P5), however, it is not believed that this area contributed to the existing groundwater problem. Soil contamination is expected to occur in this area due to the antiquated waste disposal methods probably associated with it. Soil testing could be easily incorporated into the RFI for this facility.

F006/Solid Waste Landfill (Pre-RCRA)

GMC disposed of F006 sludge and unknown wastes into a landfill located east of the existing RCRA surface impoundments. The landfill is unlined and has no groundwater monitor wells assigned to it. The landfill is believed to primarily contain F006 sludge, however, GMC personnel informed me that additional wastes were placed into the landfill as well. The landfill should be incorporated into the RFI.

F006 Surface Impoundment (Pre-RCRA)

An old F006 sludge impoundment exists east of the open burning field and contains wastes similar to those found in the regulated units. The impoundment is unlined and the exact dimensions of the unit are undefined. GMC personnel expressed some doubt concerning the lateral extent of the unit with respect to the facility's property line. This unit should be investigated within the RFI.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1194'
1190'
256'
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590'
790'
553'
807'
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PARKING
PARKING
PARKING
MANUFACTURING
BUILDING
WATER TOWER
WASTE DECONTAMINATION PIT
EQUIP DECONTAMINATION TANK
EQUIP DECONTAMINATION TANK
WASTE DRUM STORAGE
POWER HOUSE
WATER STORAGE
SWITCH HOUSE
FENCE
FENCE
PROPERTY LINE
PAST DISPOSAL AREA
PAST DISPOSAL AREA
PAST DISPOSAL AREA
340'
700'
450'
900'
500'
600'
MAIN STORM SEWER
NPDES 001 OUTFALL
2882'
PROPERTY LINE
3 SLUDGE FILTER BASINS 200' X 500' EA.
WOODED AREA
WOODED AREA
OPEN DITCH
S.E. Plant Lodge
= lagoons
ELYRIA
1980 PRODUCTION
ELY-100
PLOT PLAN

OhioEPA
State Of Ohio Environmental Protection Agency
. Box 1049, 361 East Broad St., Columbus, Ohio 43216-1049
(614) 466-8565

Richard F. Celeste, Governor

March 10, 1986

Ms. Lisa A. Pierard, Acting Chief
Technical Programs Section, Ohio Unit
U.S. EPA, Region V
230 South Dearborn Street
Chicago, Illinois 60604

Dear Ms. Pierard:

Attached for your further action are Corrective Action, Facility Management Plan for GMC-Fisher Guide Division (OHD004201091).

Our recommendation is for State Action in May of 1986. The November 1988 Federal deadline will be a consideration of our final action.

Please provide me with any comments you may develop concerning the quality or quantity of this work effort.

If your permit writers have a question of a specific nature please direct them to contact the Ohio EPA District Permit Writer. Any other questions or comments of a programmatic or scheduling issue should be directed to me.

We are on track with the development and scheduling of FMP's. If you have questions, please call.

Sincerely,

Christopher L. Bowers

Christopher L. Bowers, P.E.
Manager, Engineering Section
Division of Solid & Hazardous Waste Management

CLB/dhs

Attachments

cc: Steve White, Chief, DSHWM
Martha Gibbons, DSHWM
Bill Skowronski/Don Easterling, NEDO
File: 02-47-0192 w/attachment

1653R

Facility Name : GMC - Elyria (Fisher Guide Div.)

Facility ID # : OHD 004-201-091

FMP APPROVAL

We have completed our review of the draft Facility Management Plan (FMP) for the subject facility. We have notified the Hazardous Waste Enforcement Branch (HWEB) and the Emergency and Remedial Response Branch (ERRB) that the FMP is under review, in accordance with Edith Ardiente's memos of December 2 and 6 1985.

(Check one)

☐ A corrective action order (or other enforcement action) was recommended, and HWEB concurs.

☐ No corrective action order was recommended, and HWEB did not object.

☐ A corrective action order was recommended, but HWEB did not concur at this time; we have revised the FMP accordingly.

(Check one)

☐ Action involving ERRB was recommended, and ERRB concurs.

☐ No ERRB action was recommended, and ERRB did not object.

☐ Action involving ERRB was recommended, that ERRB did not concur; we have revised the FMP accordingly.

(Check one)

☒ Based on our review, the FMP is hereby approved as drafted by OEPA.

☐ Based on our review, the FMP as drafted by OEPA is hereby approved as amended.

☐ The FMP is hereby approved as drafted by Ohio Permits Unit, U.S. EPA Region V.

Signature _____ Date: 7/1/86
(EPA Staff)

OhioEPA Inter-Office Communication

TO: Chris Bowers, Engineering Section, DSHWM, C.O. DATE: 1-29-86

FM: Donald Easterling, DSHWM, NEDO

SUBJECT: Facility Management Plan – GMC, Elyria – OHD 004 201 091

I have attached the completed FMP for GMC, Fisher Guide Division, Elyria Plant. Please contact me if you have any questions.

Name of Preparer: Donald F Easterling
Date: 1-29-86

Model Facility Management Plan

1. Facility Name: General Motors Corporation - Fisher Guide Division - Elyria Plant

2. Facility I.D. Number: OHD 004 201 091
Ohio # 02-47-0192

3. Owner and/or Operator: General Motors Corp.

4. Facility Location: 1400 Lowell Street
Street Address

Elyria / Lorain / Ohio 44036
City / County / State Zip Code

5. Facility Telephone (if available): (216) 329-1000

6. Interim Status and/or Permitted Hazardous Waste Units and Capacities of Each Unit:

	Type of Units	Size or Capacity	Active or Closed
✓	Storage in Tanks or Containers	(A) ~164 drums (B) 61,000 gallons - Tanks	(A) Active. (B) Inaccurate notification - part of wastewater treatment system - permitted by rule.
	Incinerator		
	Landfill		
✓	Surface Impoundment	45,000 cubic yards	Active
	Waste Pile		
	Land Treatment		
	Injection Wells		
✓	Others (Specify) treatment in tanks	~15,000 gallons	- inactive, but not yet formally closed

7. Permit Application Status: _____ (HWDMS action item number)

Identification of Hazardous Waste Generated, Treated, Stored or Disposed at the Facility: (may attach Part A or permit list or reference those documents if listing of wastes is exceptionally long – in that case, to complete this question list wastes of greatest interest and/or quantity and note that additional wastes are managed)

Type of Waste	Quantity	Generated, Treated, Stored or Disposed (note appropriate categories)

See attached list — Attachment #1

Certification statement

9. Review of Response to Solid Waste Management Questionaire indicates: (check one)

_____ Solid Waste Management Units exist (other than previously identified RCRA units)

_____ No Solid Waste Management Units exist (other than previously identified RCRA units)

Not Received

_____ It is unclear from review of questionaire whether or not any solid Waste Management Units exist

_____ Respondent indicates that does not know if any Solid Waste Management Units exist

10. If the response to question 9 is that Solid Waste Management Units exist, than check one of the following:

_____ Releases of hazardous waste or constituents have occurred or are thought to have occurred

Not Received

_____ Releases of hazardous waste or constituents have not occurred

_____ Releases of hazardous waste or constituents have occurred or are thought to have occurred but have been adequately remedied

_____ It is not known whether a release of hazardous waste or constituents has occurred

11. The facility is on the National Priorities List or proposed update of the List or ERRIS list

_____ Yes - indicate List or update

__✓__ No

_____ Yes - ERRIS list

Prior to completion of the Recommendation portion of the Facility Management Plan, the attached Appendix must be completed.

12. Recommendation for Regional Approach to the Facility: Check one

_____ Further Investigation to Evaluate Facility

_____ Permit Compliance Schedule

_____ Corrective Action Order (may include compliance schedule)

_____ Other Administrative Enforcement

_____ Federal Judicial Enforcement

_____ Referral to CERCLA for Federally Financed or Enforcement Activity

_____ Voluntary/Negotiated Action

__✓__ State Action

Brief narrative in explanation of selection : This approach is needed due to the complex nature of the site and the undetermined impact of past disposal/leak sites.

a) If further investigation alternative is selected:

N/A Site inspection - anticipated inspection date _____

State or Federal inspection _____

_____ Preliminary Assessment - anticipated completion date _____

_____ RI/FS - anticipated date of initiation _____

State/Federal_____

Private Party_____ identify party(ies)

_____

b) If Permit Alternative is Selected: Projected Schedule N/A

Date of Part B Submission: _____

Date of Completeness Check: _____

Date for Additional Submissions (if required): _____

Date of Completion of Technical Review: _____

Completion of Draft Permit/Permit Denial: _____

Public Notice for Permit Decision: _____

Date of Hearing (if appropriate): _____

Date for Final Permit or Denial Issuance: _____

Description of any corrective action provisions to be included in permit -

_____

_____

_____

c) If Corrective Action Order Alternative is Selected: N/A

Estimated Date for Order Issuance: _____

Description of Provisions of the Order to be Completed by Facility: _____

_____

_____

Description of Compliance Schedule to be Contained in Order:

_____

_____

_____

d) If Other Administrative Enforcement Action is Selected: N/A

Projected Date for Issuance of the Order: _____

Description of Provisions or Goals of the Order: _____

e) If Judicial Enforcement Alternative Selected: N/A

Date of Referral to Office of Regional Counsel: _____

f) If Referral to CERCLA for Action Selected:

Date of Referral to CERCLA Sections: _____

g) If Voluntary/Negotiated Action Alternative if Selected: N/A

Date of Initial Contact with Facility: _____

Description of Goals of Contact or Discussions with Facility: _____

Date for Termination of Discussions if Not Successful:

_____

Date of Finalization of Settlement if Negotiation Successful:

_____

h) If State Action Alternative is Selected:

Date for Referral to State: N/A Target date: May 1, 1986

Name of State Contact: Don Fosterling

Phone: (216) 425-9171

APPENDIX

The questions constituting this Appendix to the Facility Management Plan must be filled out prior to completion of recommendation elements of the Plan. The purpose of this appendix is to provide a summary documentation of the State and/or U.S.EPA review of available information on the subject facility. The intent is that a comprehensive file review will be conducted as the basis for selection of the recommended approach to a given facility. If the Appendix is completed by State personnel questions referring to available data reference information in State files; for Federal personnel the reference is to Federal files. Where questions refer to "all" available data or information and such material is voluminous, the response should indicate that files are voluminous, and then reference most telling information, for example groundwater contaminants found frequently or at extremely high concentrations should be specifically listed, and information most directly supporting recommended approach to facility should be described. If no information is available in facility files, the response should so indicate. It is also anticipated that this Appendix may be updated periodically as more information becomes available.

1. Description of All Available Monitoring Data for Facility:

Type of Data	Date	Author	Summary of Results or Conclusions
See attachment #2			

2. Description of Enforcement Status:

Type of Action	Date	Local, State or Federal	Result or Status
(A) Industrial files indicate numerous violations of NPDES Permit effluent limits from 1976 to 1978, but no legal action taken. Most violations explained by bad pumps, treatment system failures, and leaky tanks.			
(B) GMC adjudicated an Ohio EPA NPDES permit on 2-3-75. The was resolved by consent Orders.			

3. Description of Any Complaints from Public:

Source of Complaint	Date	Recipient	Subject and Response
None noted			

4. Description of All Inspection Reports for Facility:

Date of Inspection	Inspector (Local, State, Federal)	Conclusions or Comments
See Attachment # 3		

5. During inspection of this facility did the inspector note any evidence of past disposal practices not currently regulated under RCRA such as piles of waste or rubbish, injection wells, ponds or surface impoundments that might contain waste or active or inactive landfills?

✓ Yes - give date if inspection and describe observation

Hazardous Waste inspection on 8-13-81 ;
notes 3 closed landfill areas containing electroplating
wastes

_____ No

_____ Don't know

6. Do inspection reports indicate observations of discolored soils or dead vegetation that might be caused by a spill, discharge or disposal of hazardous wastes or constituents?

_____ Yes – indicate date of report and describe observations

_____

_____

✓ No

_____ Don't know

7. Do inspection reports indicate the presence of any tanks at the facility which are located below grade and could possibly leak without being noticed by visual observation?

_____ Yes – date of inspection and describe information in report

_____

_____

_____

✓ No

_____ Don't know

8. Does a groundwater monitoring system exist at the facility? Yes

9. If answer to question 8 is yes, is the groundwater system capable of monitoring both regulated RCRA units and other Solid Waste Management Units? No

Explain – The monitoring wells surround the lagoons only and are upgradient from all known previous landfill sites.

10. Is the groundwater monitoring system in compliance with applicable RCRA groundwater monitoring standards? Yes

If no, explain deficiency _____

_____

_____

11. Decribe all information on facility subsurface geology or hydrogeology available.

Type of Information	Author	Date	Summary of Conclusions
(1) Geological/hydrologic investigation with boring logs for 6 wells.	Camp, Dresser & McKee Inc.	June & September 1981	Approximately 10 to 12 feet of glacial cover overlying the Berea sandstone Aquifer.
(2) Groundwater Quality Assessment report	Groundwater Quality Inc.	February, 1985	Report confirms ~~that~~ RCRA lagoons are impacting the Berea sandstone Aquifer. The rate and extent of migration are estimated.

12. Did the facility submit a 103(c) notification pursuant to CERCLA?

✓ Yes Date of Notification 6-2-81

____ No.

13. If answer to 12 is yes, briefly summarize content of that notification. (waste management units identified, type of waste concerned)

Landfilling and drum burial of electroplating wastes (heavy metals, bases and organics) from 1950 to 1977 on areas totalling ~ 20 acres.

14. Has a CERCLA Preliminary Assessment/Site Investigation (PA/SI) been completed for this facility?

✓ Yes P.A. completed March 30 and revised June 12, 1984.

____ No

5. If answer to question 14 is yes, briefly describe conclusions of the PA/SI focusing on types of environmental contamination found, wastes and sources of contamination, HRS Score.

Medium priority for site inspection. Limited contamination in groundwater in general area

16. If available, having reviewed the CERCLA notification, RCRA Part A and RCRA Part B, it appears that: (CERCLA unit refers to unit or area of concern in CERCLA response activity)

_____ RCRA and CERCLA units are same at this facility

✓ RCRA and CERCLA units are clearly different units

_____ There is an overlap between the RCRA and CERCLA units (some are the same, some are different)

does RCRA unit include sumps?

17. Description of Any Past Releases or Environmental Contamination:

Type/Source of Release	Date	Material Released	Quantity	Response

Reported Spills:

1. Spill of chrome solution on 6-24-72 — ~200 pounds — Cleaned up residual in storm sewer. Most of it went into the Black River via the storm sewer.
2. Spill of less than 100 gallons of hex chrome solution which entered storm sewer and discharged to the Black River on 11-14-83.
3. Spill of 200 gallons - same as above on 8-2-84.

Reported leaks:

(1) Leaks of hexavalent chromium plating and wastewater solutions to storm drains: 4/13/76, 11/3/76, 4-7-77, and 5-12-78.

(2) leak of Nickel plating unit to storm drains: 7-21-76

(3) leaks of Copper plating solutions into storm drains: 10-4-76 and 1-5-78 and 2-9-78

18. Identification of Reports or Documentation Concerning Each Release Described in Item 17.

Title/Type of Report	Date	Author	Recipients	Contents
Report dates are given in #17.				All reports are from SAIC and submitted to Ohio EPA.

19. Highlight any information gaps in the file - describe any plans to obtain additional needed information.

The impact of the three CERCLA landfill units on groundwater quality is unknown.

20. Summary of major environmental problems noted, desired solution and possible approaches.

Problem	Solution	Approach	Pros and Cons
(1) Leakage from the 3 hazardous waste lagoons	Eliminate source (lagoons)	(A) Chemical stabilization of wastes or (B) Removal of wastes	(A) Stabilization may be more cost effective but timing for delisting will complicate the matter. (B) Total removal may not be possible.
(2) Impact of the 3 CERCLA landfills	Determine impact on groundwater	Install groundwater wells and conduct soil borings	This is the only method which is proven to be effective in quantifying soil contamination.
(3) Cumulative effects of leakage from plating tanks and broken drain lines.	Determine impact on groundwater	SAME as Above	SAME as Above

Continued from page 2.
NOTE: Photocopy this page before comple[illegible] if you have more than 26 wastes to list. -6492

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1): W O H D 9 9 0 7 7 8 6 8 0 — T/A: — C: 1

FOR OFFICIAL USE ONLY: W — DUP — T/A: — C: 2 — DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	D002	50	T	T01	Corrosive
2	D003	2	T	T04 S01	reactive
3	F001	6	T	S02 S01	halogenated degreasers
4	F002	20	T	S01	" solvents
5	F003	25	T	S01	non " "
6	F006	4000	T	T02 S04	WWTP sludge from electroplating
7	F018				Included with F006 Above.
8	F007	20	T	S02	plating bath solutions w CN
9	F008	3	T	S02	" " sludge " "
10	F010	10	P	S02	0.1 Both Heat treating sludge
11	F017	500	T	S02 S01	
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Question #8

HAZARADOUS WASTE FACILITY APPROVAL BOARD
DEC 4 1981
ENTERED BOARD'S JOURNAL

EPA Form 3510-3 (6-80)

CONTINUE ON REVERSE

(enter "A", "B", "C", etc. behind the "3" to identify photocopied pages)

Attachment #1

Attachment #2

Monitoring Data

I Groundwater

1. GMC report dated 2-26-82 : monitoring well samples collected Jan. 25&26, 1982. Nothing unusual detected.
2. GMC report of 10-26-82 : monitoring well data and evaluation for 4 quarters. Two violations of drinking water standards for fecal coliform in 3rd Quarter.
3. GMC annual report supplement dated 3-3-83 : data for baseline year - indicator parameters only. No evaluation of data.
4. GMC report dated 6-6-83 : for sampling of wells on 5-13-83 for metals, indicators, etc — no evaluation of data.
5. GMC report dated 12-13-83 : same as above for sampling on 11-23-83.
6. GMC annual report for semi-annual samplings - dated 3-2-84 : Significant statistical changes : Well P-6 (up) : ph ; well P-1 : pharm conductivity ; Well P-2 : ph and conductivity ; Well P-5 : ph and conductivity
7. GMC report dated 5-22-84 : repeat sampling of wells on 5-8-84 confirms previous sampling results.
8. Groundwater Quality assessment report dated February, 1985 - from Groundwater Technology Inc. : This indicates lagoons have impacted the Berea Sandstone Aquifer, and determines (estimates) rate and extent of contamination.

II Other Monitoring

1. Ohio EPA sampling inspections — 6/31/76 , 12-18-78 , and 2-25-80 : Simple results for effluent monitoring.
2. GMC reports of sludge samplings — 9/10/71 and 8/18/77
3. Numerous GMC monthly reports of effluent sampling from 1960 to present.

Attachment 3

Inspections

I - Ohio EPA - Hazardous Waste Inspections

1. 8-13-81 : Paperwork violations noted. Noted that GMC had closed three landfill areas. The first was closed in 1960, the second in 1967, and the third in 1977.
2. 5-26-82 : Noted violation of freeboard limits.
3. 7-26-83 : Violations noted were : (A) lack of inspections, (B) no evaluation of groundwater data, and (C) paperwork violations.
4. 2-15-84 : no violations noted.
5. 12-4-84 : paperwork violations noted.

II Ohio EPA - Solid Waste Inspections

1. 5-15-84 - Review of proposed area for new landfill (non-hazardous

III Ohio EPA - Industrial Inspections (and Ohio Dept. of Health)

1. 7-13-59; 5-31-61; 11-5-64 - inspections of effluent quality
2. 11-26-71; 6-31-76; 12-18-78, and 2-25-80 - sampling inspections of effluent.

2-26-86

CERTIFICATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS

FACILITY NAME: Fisher Guide Div. GMC

EPA I.D. NUMBER: OHD004201091

LOCATION CITY: Elyria

STATE: Ohio

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTE UNITS CURRENTLY SHOWN IN YOUR PART A APPLICATION

	YES	NO
° Landfill	X	
° Surface Impoundment		
° Land Farm		X
° Waste Pile		X
° Incinerator		X
° Storage Tank (Above Ground)		X
° Storage Tank (Underground)		X
° Container Storage Area		
° Injection Wells		X
° Wastewater Treatment Units	X	
° Transfer Stations		X
° Waste Recycling Operations	X	
° Waste Treatment, Detoxification		
° Other _____		

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions and location at facility. Provide a site plan if available.

See attached report as submitted to Ohio EPA on 2-12-86.

NOTE: Hazardous wastes are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part A application, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or may still be occurring.

   Please provide the following information

   a. Date of release
   b. Type of waste released
   c. Quantity or volume of waste released
   d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

   See attached report as submitted to Ohio EPA on 2-12-86.

4. In regard to the prior or continuing releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

   See attached report as submitted to Ohio EPA on 2-12-86.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C. 6902 et seq. and 40 CFR 270.11(d))

Robert M. Bownes, Plant Manager
Typed Name and Title

Signature

2/26/86
Date

Facility Name BMC, Fisher Guide Div
Location (City, State) Elyria, OH
EPA I.D.# OHD004201091
Reviewer Name CKC
Date of Review 3/20/86

SUMMARY OF FACILITY CERTIFICATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS

(1) Are there any solid waste management units?

Yes X No _____ Undetermined _____

(2) If answer to (1) is Yes, list the units by type, number and operating status. If answer to (1) is No or undetermined, go to Question (5).

	Type of Unit	Status
a.	3 Landfills	Non-Operational
b.	3 Surface Impoundments	Operational
c.	Container Storage Area	Operational
d.	Wastewater Treatment Unit	Operational
e.	Waste Recycling Operation	Not Operational
f.	Waste Detoxification Unit	Operational
g.		
h.		
i.		
j.		

(3) For each type of unit listed in (2), summarize the types and volumes of wastes handled.

	Type of Unit	Type of Waste	Volume of Wastes
a.	3 Landfills	F006 & Unknown	Unknown
b.	3 Surface Impoundments	F006 Sludge	2 empty, one 40,000 cu. yd.
c.	Container Storage Area	D001, D002, D003, D007, F001, F002, F003, U223	≤ 9000 gallons
d.			
e.	Wastewater Treatment Unit	F006 Sludge	≤ 2,000,000 gal/day
f.	Waste Recycling Operation	1,1,1 Trichloroethane decontaminating drums containg toluene diisocyanate	Undetermined
g.	Waste Detoxification Unit		≤ 4 drums
h.			
i.			
j.			

(4) Summarize all releases of hazardous waste or constituents, and check box as to whether company claims it was fully corrected.

	Releases		Corrected?		
a.	3 surface impoundments	Yes ___	No ___	Undetermined ___	
b.	1978, F006 Sludge, 2000gal	Yes ___	No ___	Undetermined ✓	
c.	1981, F006 Sludge, 1200gal	Yes ___	No ___	Undetermined ✓	
d.	1984, F006 Sludge, 750gal	Yes ___	No ___	Undetermined ✓	
e.	___	Yes ___	No ___	Undetermined ___	
f.	___	Yes ___	No ___	Undetermined ___	
g.	___	Yes ___	No ___	Undetermined ___	
h.	___	Yes ___	No ___	Undetermined ___	
i.	___	Yes ___	No ___	Undetermined ___	
j.	___	Yes ___	No ___	Undetermined ___	

(5) Certification: Yes ✓ No ___

(6) Is additional information necessary? Yes ✓ No ___

(7) Comments: Respondent indicates that downgradient wells have shown statistically significant changes in background values for pH and specific conductance. The facility is apparently in an assessment monitoring program at this time. More information will be necessary at the end of this program. Certification may not meet 40CFR.

CERTIFICATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS

2-11-86

FACILITY NAME: Fisher Guide Div. GMC

U.S. EPA I.D. NUMBER: OHD 004201091

LOCATION CITY: Elyria

STATE: Ohio

1. Are there any of the following solid waste management units at your facility?

	YES	NO
° Landfill	X	
° Surface Impoundment	X	
° Land Farm		X
° Waste Pile		X
° Incinerator		X
° Storage Tank (Above Ground)		X
° Storage Tank (Underground)		X
° Container Storage Area	X	
° Injection Wells		X
° Wastewater Treatment Units	X	
° Transfer Stations		X
° Waste Recycling Operations	X	
° Waste Treatment, Detoxification	X	
° Other _____		X

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed on and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if available.

See attached sheets for detail on landfill, surface impoundment, container storage area, wastewater treatment units, waste recycling operations and waste treatment detoxification.

NOTE: Hazardous wastes are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR 261.

3. For the units noted in Number 1 above, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or still be occurring.

Please provide the following information

a. Date of release
b. Type of waste or constituent released
c. Quantity or volume of waste or constituent released
d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

See attached sheets for detail on releases from surface impoundments.

There have been no releases from other solid waste management units.

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

Groundwater monitoring data attached. Only data available.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C. 6902 et seq. and 40 CFR 270.11(d))

Robert M. Bownes, Plant Manager
Typed Name and Title

Signature

2/11/86
Date

CRAR
Page 1

February 10, 1986

SOLID WASTE MANAGEMENT UNITS

Item 2 - SWM units identified on attached Plot Plan

Landfill: Past disposal area A - used for open burning of general Plant trash circa 1947 - 1957, covered with soil and overgrown, no records or estimates of contents or volume. Area noted on RCRA Part A Application.

- Past disposal Area B - used as surface impoundment for wastewater treatment sludge circa 1956 - 1967, allowed to dry and covered with soil in 1970, now overgrown, sludge believed to be F006. Volume estimated at 25,000 cu yd. Area noted on RCRA Part A Application.

200 x 500 x 3.5 = 350,000 ft³
1 yd³ = 27 ft³
⇒ 12963 yd³ for ONE lagoon

- Past Disposal Area C - Used for burial of F006 sludge from existing surface impoundments from 1972 to 1977, topsoil replaced and area now overgrown. Volume estimated to be 40,000 cu yd. Area noted on RCRA Part A Application.

Surface Impoundment - Lagoons 1, 2 & 3 - Three lagoons 200' X 500' X 3' to 4' deep each, for dewatering F006 wastewater treatment sludge thru filter sand and underdrain tile system at bottom; lagoons 1 & 3 have been excavated and disposed once each to an off-site secure landfill in 1983 and 1981 respectively. Lagoon 1 is currently receiving sludge and lagoons 2 & 3 are drying. Current volume of F006 sludge is approximately 40,000 cu yd. Area included in RCRA Part A.

Drum Storage Area - A 30 ft x 40 ft concrete pad used for storing waste in 55 gallon drums prior to offsite disposal. Stored wastes have included hazardous wastes classified as D001, D002, D003, D007, F001, F002, F003 and U223. Maximum capacity is considered to be 180 drums (9000 gal) and currently contains 60 drums. Drainage from this area goes to the Wastewater Treatment plant. Area included in RCRA Part A.

Wastewater Treatment unit - Onsite Treatment plant for electroplating, cleaning, phosphating, and metal finishing wastewater, NPDES Permit No. 3IS00001*CD, generates F006 Sludge currently being disposed to Lagoon 1 listed above. Treatment capacity 2,000,000 gal. per day.

Waste Recycling - Previously operated a detrex still for reclaiming 1.1.1 trichloroethane solvent, Ohio EPA Permit No. 1947040038-P102, this equipment was scrapped in 1984 and we now send spent solvent to an outside processor for reclaim. Not included in RCRA Part A.

Detoxification - Area at northeast corner of Wastewater Treatment facility with two in ground concrete tanks and asphalt drive used for reacting and decontaminating drums of waste containing toluene diisocyanate, could handle four drums of TDI, but normally used for no more than two drums, use is infrequent. Area included in RCRA Part A.

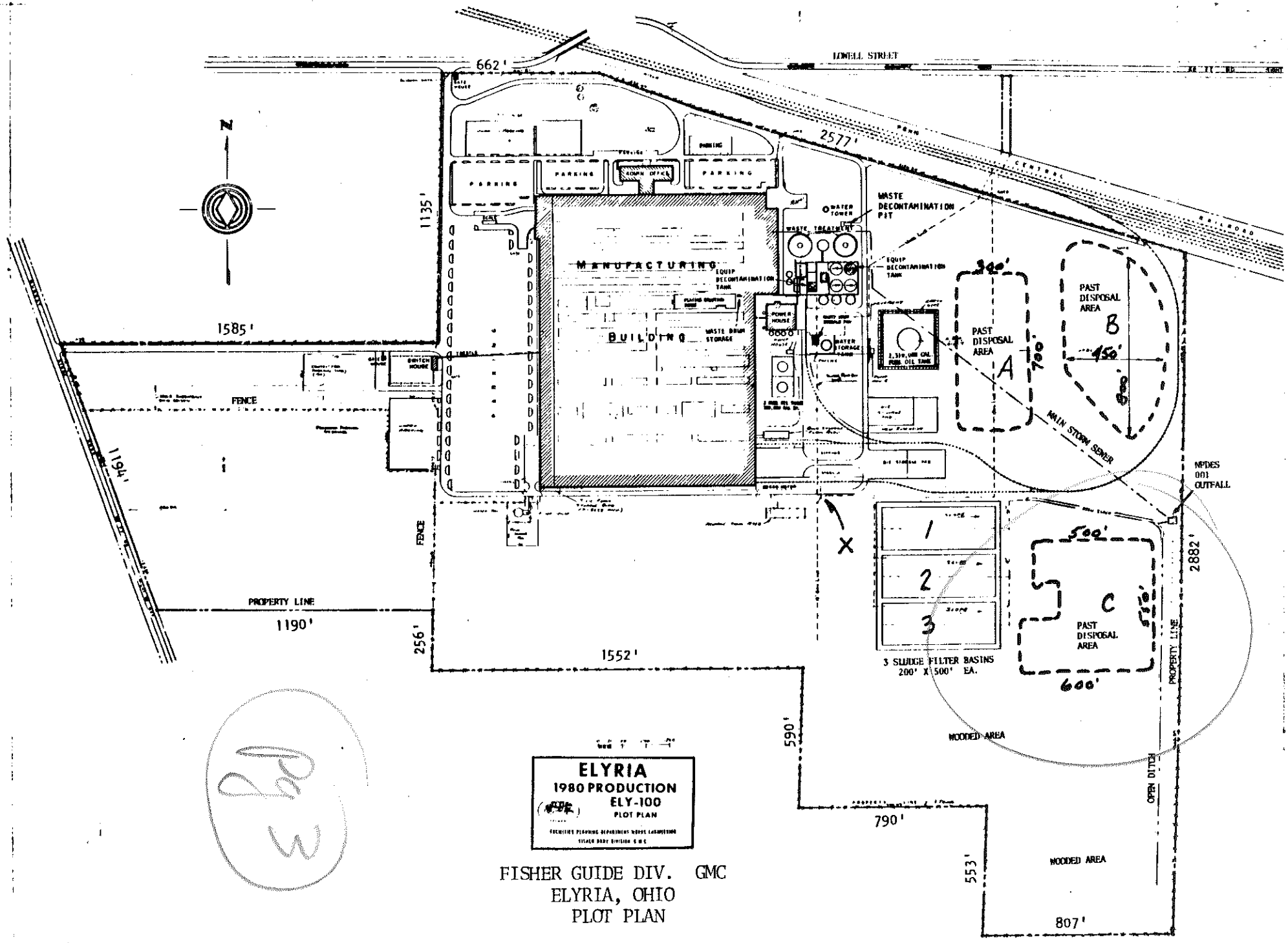
Item 3 - Releases: All releases reported below involve F006 sludge and Lagoons 1, 2, or 3 or part of their associated equipment:

Lagoon 3 - Overflowed south bank due to pumping on top of frozen sludge surface.
1978 Loss estimated at 2000 gal.

Discharge Pipe - Broken fitting at end of pipe (southwest corner of Lagoon 3)
1981 due to damage by excavation equipment loss estimated at 1200 gal.

Discharge Pipe - Broken fitting at point "X" (See Plot Plan) due to surge pressure
1984 from clearing line using compressed air. Loss estimated at 750 gal.

Groundwater - downgradient wells have shown statistically significant change from background values of 40CFR265.92 (B) (3) indicator parameters (pH & Spec. Cond.) monitoring data is enclosed. We are in an assessment monitoring program at this time.



FISHER GUIDE DIV. GMC
ELYRIA, OHIO
PLOT PLAN

FILE

General Motors Corporation
Fisher Body Division
PO Box 4025
Elyria, Ohio 44036

Attn: Mr. Tom Applegate

Samples Received: 6/28/85

Date: July 31, 1985

Project Number: 8976

Results reported in mg/l
except where noted.

GROUNDWATER

ERG-Cleve Sample ID	GM-Elyria Sample ID	pH (S.U.)	Conductivity (µhmos/cm)	Total Organic Carbon	Organic Chloride	Organic Bromide	Organic Iodide	Chloride	Iron	Zinc
30,896A	P-1	7.4	810	6	0.35	ND-0.01	0.02	120	1.7	0.23
B		7.4	800	4	0.46	ND-0.01	0.01	---	---	----
C		7.4	810	5	0.65	ND-0.01	0.02	---	---	----
D		7.4	800	5	0.45	ND-0.01	0.02	---	---	----
30,897A	P-2	7.2	640	2	0.02	ND-0.01	ND-0.01	2.6	1.5	0.037
B		7.2	650	<2	0.28	ND-0.01	ND-0.01	---	---	----
C		7.2	650	2	0.14	ND-0.01	ND-0.01	---	---	----
D		7.2	650	<2	0.10	ND-0.01	ND-0.01	---	---	----
30,898A	P-5	6.7	820	2	0.13	ND-0.01	0.01	0.88	1.4	0.043
B		6.7	820	3	0.07	ND-0.01	0.01	---	---	----
C		6.7	840	3	0.15	ND-0.01	0.01	---	---	----
D		6.7	820	2	0.16	ND-0.01	0.02	---	---	----
30,899A	P-6	7.2	590	ND-2	0.18	ND-0.01	ND-0.01	2.6	3.5	0.028
B		7.2	600	ND-2	0.26	ND-0.01	ND-0.01	---	---	----
C		7.2	590	ND-2	0.14	ND-0.01	ND-0.01	---	---	----
D		7.2	600	<2	0.14	ND-0.01	ND-0.01	---	---	----

ND=non-detectable. Detection limits are shown next to "ND" notations.

1985 DATA

General Motors Corporation
Fisher Body Division
PO Box 4025
Elyria, Ohio 44036

Attn: Mr. Tom Applegate

Samples Received: 6/28/85

Date: July 31, 1985

Project Number: 8976

Results reported in mg/l
except where noted.

GROUNDWATER

ERG-Cleve Sample ID	GM-Elyria Sample ID	Manganese	Phenol	Sodium	Sulfate	Chromium	Hexavalent Chromium	Copper	Nickel	Aluminum
30,896	P-1	0.20	0.041	75	221	0.024	<0.010	0.14	0.045	0.96
30,897	P-2	0.37	<0.010	82	199	<0.020	<0.010	0.022	0.032	1.1
30,898	P-5	0.14	<0.010	39	288	<0.020	<0.010	0.036	0.043	1.2
30,899	P-6	0.69	<0.010	8.2	140	0.18	<0.010	0.015	0.034	1.8

General Motors Corporation
Fisher Body Division
PO Box 4025
Elyria, Ohio 44036

Attn: Mr. Tom Applegate

Samples Received: 6/28/85

Date: July 31, 1985

Project Number: 8976

Results reported in mg/l

GROUNDWATER

PIEZIOMETRIC WATER LEVEL?

ERG-Cleve Sample ID	GM-Elyria Sample ID	Barium	Lead	Magnesium	Depth to Water	
30,896	P-1	<1.0	0.087	40	10'0"	739.8
30,897	P-2	<1.0	0.049	36	6'4"	742.6
30,898	P-5	<1.0	0.081	47	11'11"	740.3
30,899	P-6	<1.0	0.084	43	8'4"	745.5

Approved by: Gunars Zikmanis
Gunars Zikmanis
Laboratory Manager

GROUNDWATER MONITORING ANALYSIS — E-10-E5

SAMPLES DATED 6-28-85 — t-TEST —

REC'D E-5-85

1982 BACKGROUND DATA (UPGRADIENT)

	pH	Spec Cond	TOC	TCH
$\bar{X}$	7.19	1052	<1	<0.1
S^2	0.013	1956	0	0
S	0.114	44.22	0	0

JUNE E5

P-1	$\bar{X}$	7.4	805	5.0	0.50
DN	S^2	0	33.33	0.67	0.02
	t^*	7.37	-21.61	12.22 9.77	5.66
	t_c	2.95	2.73	4.54 4.54	4.54
	SIGNF	2.50	-7.93	2.69 2.15	1.25
P-2	$\bar{X}$	7.2	648	1.5	0.14
DN	S^2	0	25.00	0.33	0.01
	t^*	0.35	-35.64	1.74	0.00
	t_c	2.95	2.70	4.54	4.54
	SIGNF	0.12	-13.22	0.38	0.18
P-5	$\bar{X}$	6.7	825	2.5	0.13
DN	S^2	0	100	0.33	0.002
	t^*	-17.19	-18.71	5.22	1.34
	t_c	2.95	2.93	4.54	4.54
	SIGNF	-5.83	-6.38	1.15	0.30
P-6	$\bar{X}$	7.2	595	0.4	0.18
	S^2	0	33.33	0.56	0.003
	t^*	0.35	-39.99	-1.60 1.07	2.92
	t_c	2.95	2.73	4.54 4.54	4.54
	SIGNF	0.12	-14.67	-0.35 .24	0.64

___ = STATISTICALLY SIGNIFICANT CHANGE FROM BASELN

ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

7777 EXCHANGE STREET
CLEVELAND, OH 44125 (216) 447-0790

Project: V9321

Report Date: 11/01/85

Results by Sample

Prepared for:
GENERAL MOTORS CORPORATION
FISHER BODY DIVISION
PO BOX 4025
ELYRIA, OH 44036
Attention: TOM APPLEGATE

Client P.O.: GM ELYRIA
Report #: 760
Samples Rec'd: 09-12-85

Approved:
Refer Questions to:
JOHN PALMER

**
Residual Samples Will Be Held
For Two Weeks
**

Client ID	P-1 A	P-1 B	P-1 C	P-1 D	P-2 A	P-2 B
ERG Sample Number	09/136422	09/136423	09/136424	09/136425	09/136426	09/136427
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Parameter						
ALUMINUM, TOTAL mg/L	0.56	-	-	-	<1.0	-
BARIUM, TOTAL mg/L	<0.05	-	-	-	ND (0.05)	-
ORGANIC CARBON, TOTAL mg/L	2	ND (1)	ND (1)	<1	ND (1)	<1
CHLORIDE mg/L	140	-	-	-	25	-
HEXAVALENT CHROMIUM mg/L	<0.02	-	-	-	0.05	-
TRIVALENT CHROMIUM mg/L	<0.02	-	-	-	<0.02	-
SPECIFIC CONDUCTANCE umho/cm	1400	1400	1400	1400	1000	1000
COPPER, TOTAL mg/L	0.15	-	-	-	<0.02	-
HALOSCAN - T						
ORGANIC CHLORINE mg/L	0.21	0.22	0.28	0.33	<0.01	<0.01
ORGANIC BROMINE mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
ORGANIC IODINE mg/L	<0.01	<0.01	<0.01	<0.01	ND (0.01)	ND (0.01)
IRON, TOTAL mg/L	1.1	-	-	-	8.5	-
LEAD, TOTAL mg/L	ND (0.05)	-	-	-	ND (0.05)	-
MAGNESIUM, TOTAL mg/L	33	-	-	-	27	-
MANGANESE, TOTAL mg/L	0.25	-	-	-	0.65	-
NICKEL, TOTAL mg/L	<0.05	-	-	-	0.05	-
PHENOLS mg/L	0.004	-	-	-	0.008	-
SODIUM mg/L	99	-	-	-	90	-
SULFATE mg/L	29	-	-	-	150	-
WATER LEVEL	11' 1"	-	-	-	9' 6"	-
ZINC mg/L	0.32	-	-	-	0.03	-
pH S.U.	7.1	7.2	7.2	7.2	7.2	7.2

Client ID	P-2 C	P-2 D	P-5 A	P-5 B	P-5 C	P-5 D
ERG Sample Number	09/136428	09/136429	09/136430	09/136431	09/136432	09/136433
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Parameter						
ALUMINUM, TOTAL mg/L	-	-	12	-	-	-
BARIUM, TOTAL mg/L	-	-	ND (0.5)	-	-	-
ORGANIC CARBON, TOTAL mg/L	ND (1)	<1	<1	<1	ND (1)	8
CHLORIDE mg/L	-	-	41	-	-	-
HEXAVALENT CHROMIUM mg/L	-	-	ND (0.02)	-	-	-
TRIVALENT CHROMIUM mg/L	-	-	<0.02	-	-	-
SPECIFIC CONDUCTANCE umho/cm	980	1000	1500	1500	1500	1500
COPPER, TOTAL mg/L	-	-	0.09	-	-	-
HALOSCAN - T						
ORGANIC CHLORINE mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
ORGANIC BROMINE mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
ORGANIC IODINE mg/L	ND (0.01)	<0.01	<0.01	<0.01	<0.01	<0.01
IRON, TOTAL mg/L	-	-	28	-	-	-
LEAD, TOTAL mg/L	-	-	ND (0.05)	-	-	-

 See last page for explanation of symbols

ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Report Date: 01 NOV 1985

Client ID	P-2 C	P-2 D	P-5 A	P-5 B	P-5 C	P-5 D
ERG Sample Number	09/136428	09/136429	09/136430	09/136431	09/136432	09/136433
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Parameter						
MAGNESIUM, TOTAL mg/L	-	-	62	-	-	-
MANGANESE, TOTAL mg/L	-	-	0.46	-	-	-
NICKEL, TOTAL mg/L	-	-	<0.05	-	-	-
PHENOLS mg/L	-	-	0.005	-	-	-
SODIUM mg/L	-	-	56	-	-	-
SULFATE mg/L	-	-	320	-	-	-
WATER LEVEL	-	-	13' 4"	-	-	-
ZINC mg/L	-	-	0.14	-	-	-
pH S.U.	7.2	7.2	6.8	6.7	6.8	6.8

Client ID	P-6 A	P-6 B	P-6 C	P-6 D
ERG Sample Number	09/136434	09/136435	09/136436	09/136437
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Parameter				
ALUMINUM, TOTAL mg/L	8.1	-	-	-
BARIUM, TOTAL mg/L	ND (0.5)	-	-	-
ORGANIC CARBON, TOTAL mg/L	<1	7	ND (1)	<1
CHLORIDE mg/L	4	-	-	-
HEXAVALENT CHROMIUM mg/L	0.03	-	-	-
TRIVALENT CHROMIUM mg/L	<0.02	-	-	-
SPECIFIC CONDUCTANCE umho/cm	870	870	870	880
COPPER, TOTAL mg/L	0.05	-	-	-
HALOSCAN - T				
ORGANIC CHLORINE mg/L	<0.01	<0.01	<0.01	<0.01
ORGANIC BROMINE mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
ORGANIC IODINE mg/L	<0.01	<0.01	<0.01	<0.01
IRON, TOTAL mg/L	35	-	-	-
LEAD, TOTAL mg/L	ND (0.05)	-	-	-
MAGNESIUM, TOTAL mg/L	47	-	-	-
MANGANESE, TOTAL mg/L	1.8	-	-	-
NICKEL, TOTAL mg/L	0.05	-	-	-
PHENOLS mg/L	<0.004	-	-	-
SODIUM mg/L	14	-	-	-
SULFATE mg/L	88	-	-	-
WATER LEVEL	13' 0"	-	-	-
ZINC mg/L	0.15	-	-	-
pH S.U.	7.1	7.1	7.1	7.1

Project Comments:

Comments about sample 09/136428
PHENOLS - AVERAGE OF DUPLICATE RUNS
HEXAVALENT CHROMIUM - AVERAGE OF DUPLICATE RUNS
Comments about sample 09/136430
SPECIFIC CONDUCTANCE - AVERAGE OF DUPLICATE RUNS
TOTAL BARIUM - HIGHER DETECTION LIMIT DUE TO MATRIX INTERFERENCE.
Comments about sample 09/136434
SULFATE - AVERAGE OF DUPLICATE RUNS
TOTAL BARIUM - HIGHER DETECTION LIMIT DUE TO MATRIX INTERFERENCE.

Note Results indicated by '#' are in mg/Kg instead of mg/L
FR = See field report for result
NA = Not applicable to test requested
ND = Nondetected, detection limit in ()
SD = Sample damaged
SR = See attached report for result
< = Positive result but at unquantifiable concentration below inicated level
- = Test not requested for this sample

GROUNDWATER MONITORING ANALYSIS — 11-8-85

SAMPLES DATED 9-12-85 — t-TEST — FISHER-GUIDE ELYRIA, OH.

REPORT DATED 10-25-85 REC'D 11-5-85

1982 BACKGROUND DATA (UPGRADIENT) P-6

		PH	SPEC. COND.	TOC	TOH	ELEV. (MSL)
	$\bar{X}$	7.19	1052	< 1	< 0.1	
	S^2	0.013	1956	0	0	
	S	0.114	44.22	0	0	
SEPT. 85						
P-1	$\bar{X}$	7.18	1400	0.50	0.26	11'-1
DN.	S^2	0.003	0.00	1.00	0.003	(738.7')
	t^*	-0.253	31.474	-1.00	5.642	
	t_c	4.336	2.602	4.541	4.541	
	SIGNIF.	-0.056	12.096	-0.220	1.267	
P-2	$\bar{X}$	7.20	995	0.00	0.00	9'-6
DN	S^2	0.000	100.0	0.00	0.00	(739.4')
	t^*	0.351	-4.697	INDET.	INDET.	
	t_c	2.947	2.931	—	—	
	SIGNIF	0.119	-1.603	NO	NO	
P-5	$\bar{X}$	6.78	1500	2.00	0.00	13'-4
DN	S^2	0.003	0.0	16.00	0.00	(738.9')
	t^*	-10.372	40.519	0.500	INDET	
	t_c	4.336	2.602	4.541	—	
	SIGNIF.	-2.392	15.572	0.110	NO	
P-6	$\bar{X}$	7.10	872	1.75	0.00	13'-0
UP	S^2	0.000	25.0	12.25	0.00	(740.8')
	t^*	-3.157	-15.879	0.429	INDET	
	t_c	2.947	2.696	4.541	—	
	SIGNIF.	-1.071	-5.689	0.094	NO	

= STATISTICALLY SIGNIFICANT CHANGE FROM BASELINE.

FILE

1984 DATA

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER MONITORING INFORMATION

Applicability: This Supplementary Annual report Form should be completed by all facilities which are required by OAC 3745-65-90 to do ground water monitoring.

PART I: FACILITY IDENTIFICATION

Date of Submission: 3-1-85

Facility Name: GMC Fisher Guide Div.
Mailing Address: P.O. Box 4025
Elyria, OH 44036

HWFAB Permit # 02-47-0192

Check Applicable Process Codes
X S04, Storage in Surface Impoundment
___T02, Treatment in Surface Impoundment
___D80, Disposal in Landfill
___D81, Disposal by Land Application
___D83, Disposal in Surface Impoundment

County: Lorain
Facility Contact: James A. Lucas
Phone Number: (216) 329-1250

Please note that the process codes listed above conform to those found in your Part A application, and not to the annual report form which you will receive in a separate mailing.

PART II: GROUND WATER MONITORING INFORMATION

Instructions

All facilities required to do ground water monitoring should have received a guidance document from the Ohio EPA (dated November 9, 1982) which includes information on performing the statistical tests and evaluating well elevation data. Please refer to this as you fill out the form.

Section 1: Include Indicator Parameter values from all RCRA wells. report values of upgradient well(s) first. Upgradient wells should have four replicate measures of each parameter for each sampling date. Please designate wells as upgradient (UP) or downgradient (DN); for example, W2, DN. If more than one measure of each indicator parameter was made from samples taken from downgradient wells, please report these as well. Attach additional pages as needed. Facilities which have not completed 4 quarters of data should briefly explain why.

Section 2: Only facilities which have completed 4 quarters of ground water monitoring data, plus the first semi-annual sampling of indicator parameters, need report anything in this section. Report upgradient well(s) first. Put "NOT APPLICABLE" under the section heading if appropriate.

Section 3: Report well elevations in Mean Sea Level. Identify well elevations by well number and location (upgradient, downgradient). Record the dates that elevations were taken under each quarterly heading. Please attach well logs to this form.

Section 4: Summarize efforts to determine rate and extent of migration of hazardous waste constituents in the ground water, and the concentrations of the hazardous waste or hazardous waste constituents in the ground water. Report results of analysis. Put "NOT APPLICABLE" under the section heading if appropriate.

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P6, UP	01-26-82	<.1	< 1	7.40	1050
		<.1	< 1	7.25	1025
		<.1	< 1	7.40	1075
		<.1	< 1	7.35	1100
	05-05-82	<.1	< 1	7.20	950
		<.1	< 1	7.15	1025
		<.1	< 1	7.19	1025
		<.1	< 1	7.20	1050
	08-24-82	<.1	< 1	7.03	1075
		<.1	< 1	7.05	1100
		<.1	< 1	7.10	1125
		<.1	< 1	7.07	1100
	11-16-82	<.1	< 1	7.15	1025
		<.1	< 1	7.15	1000
		<.1	< 1	7.16	1050
		<.1	< 1	7.14	1050

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance µMHOS
P1, DN	01-26-82	< .1	< 1	7.05	1600
		< .1	< 1	7.05	1550
		< .1	< 1	7.05	1600
		< .1	< 1	7.10	1625
	05-05-82	< .1	< 1	6.71	1450
		< .1	< 1	6.70	1450
		< .1	< 1	6.75	1400
		< .1	< 1	6.71	1400
	08-24-82	< .1	< 1	6.85	1600
		< .1	< 1	6.88	1625
		< .1	< 1	6.84	1625
		< .1	< 1	6.92	1600
	11-16-82	< .1	< 1	7.21	1650
		< .1	< 1	7.24	1575
		< .1	< 1	7.22	1575
		< .1	< 1	7.20	1625

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P2, DN	01-25-82	<.1	< 1	7.30	1150
		<.1	< 1	7.30	1175
		<.1	< 1	7.25	1150
		<.1	< 1	7.30	1175
	05-05-82	<.1	< 1	6.75	1200
		<.1	< 1	6.75	1150
		<.1	< 1	6.77	1150
		<.1	< 1	6.75	1150
	08-24-82	<.1	< 1	6.92	1425
		<.1	< 1	6.95	1400
		<.1	< 1	7.01	1375
		<.1	< 1	6.94	1400
	11-16-82	<.1	< 1	7.21	1100
		<.1	< 1	7.21	1150
		<.1	< 1	7.20	1150
		<.1	< 1	7.15	1150

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P5, DN	01-25-82	< .1	< 1	7.25	1350
		< .1	< 1	7.35	1300
		< .1	< 1	7.40	1375
		< .1	< 1	7.35	1300
	05-05-82	<.1	< 1	7.10	1375
		<.1	< 1	7.14	1375
		<.1	< 1	7.10	1400
		<.1	< 1	7.10	1350
	08-24-82	<.1	< 1	6.96	1525
		<.1	< 1	7.02	1500
		<.1	< 1	7.01	1525
		<.1	< 1	6.98	1500
	11-16-82	<.1	< 1	7.01	1325
		<.1	< 1	7.01	1300
		<.1	< 1	7.04	1350
		<.1	< 1	7.01	1325

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER MONITORING INFORMATION

SECTION 2: REPORT STATISTICAL EVALUATION OF INDICATOR PARAMETERS (RESULTS OF t-TEST) OAC 3745-65-94(A)(2)(b)

FIRST SEMI-ANNUAL SAMPLING

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P6-up	5-30-84	.056	ND	7.3	500
		.100	2	7.2	490
		.050	2	7.3	490
		.044	3	7.3	500
Mean		.063	1.75	7.28	495
Variance		.001	1.58	.0025	33.3
Background Mean		<.10	< 1.0	7.19	1052
t-Value		.82	1.99	2.37	-48.74
Significance at .01 Yes (give value) or No		No	No	No	No

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P6-up	11-8-84	ND	ND	7.1	640
		ND	ND	7.1	640
		ND	ND	7.1	650
		ND	ND	7.1	650
Mean		ND	ND	7.1	645
Variance		0	0	0	33.3
Background Mean		<.10	< 1.0	7.19	1052
t-Value		--	--	3.16	-35.62
Significance at .01 Yes (give value) or No		No	No	1.07	No

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER
MONITORING INFORMATION

SECTION 2: Continued

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P1-DN	5-30-84	.065	6	6.8	1080
		.044	6	6.8	930
		.067	6	6.8	940
		.036	6	6.9	940
Mean		.053	6	6.82	972
Variance		.00024	0	.003	5158
Background Mean		<.10	< 1.0	7.19	1052
t-Value		.387	--	-9.36	-2.13
Significance at .01 Yes (give value) or No		No	Indeter	-2.16	No

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P1-DN	11-8-84	.044	7	6.6	1190
		.059	7	6.6	1190
		.014	8	6.6	1190
		.037	8	6.6	1200
Mean		.039	7.5	6.6	1192
Variance		.00035	.333	0	25
Background Mean		<.10	<1.0	7.19	1052
t-Value		-1.17	24.26	-20.90	12.35
Significance at .01 Yes (give value) or No		No	5.34	-7.96	4.58

NOTE: Subsequent retest failed to confirm TOC increase, but did confirm pH decrease and Sp. conductance increase.

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER
MONITORING INFORMATION

SECTION 2: Continued

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P2-DN	5-30-84	.042	ND	7.3	705
		.110	2	7.3	710
		.080	3	7.3	690
		.040	2	7.3	660
Mean		.068	1.75	7.3	691
Variance		.001	1.58	0	506
Background Mean		<.10	<1.0	7.19	1052
t-Value		1.14	1.99	3.86	22.9
Significance at .01 Yes (give value) or No		No	No	1.31	No

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P2-DN	11-8-84	.002	ND	7.1	720
		.010	ND	7.1	725
		.013	ND	7.1	725
		.010	ND	7.1	720
Mean		.009	ND	7.1	722
Variance		.00002	0	0	8.3
Background Mean		<.10	<1.0	7.19	1052
t-Value		-18.3	--	-3.16	-29.6
Significance at .01 Yes (give value) or No		No	No	-1.07	No

NOTE: Subsequent retest confirmed pH decrease. See also attached Groundwater Quality Assessment Program.

(DATED 1-18-85

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER
MONITORING INFORMATION

SECTION 2: Continued

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P5-DN	5-30-84	.286	3	7.6	890
		.337	4	7.6	890
		.327	3	7.6	890
		.206	3	7.6	880
Mean		.289	3.25	7.6	888
Variance		.004	.25	0	25
Background Mean		<.10	<1.0	7.19	1052
t-Value		7.56	11.0	14.38	14.47
Significance at .01 Yes (give value) or No		1.66	2.42	4.88	No

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P5-DN	11-8-84	.383	4	6.9	1200
		.322	4	6.9	1200
		.312	4	6.9	1200
		.249	4	6.9	1200
Mean		.317	4	6.9	1200
Variance		.003	0	0	0
Background Mean		<.10	<1.0	7.19	1052
t-Value		9.75	--	-10.17	13.38
Significance at .01 Yes (give value) or No		2.15	Indeterm	-3.45	5.14

NOTE: Subsequent retest failed to confirm TOH and TOC increase, but did confirm pH decrease and Sp. conductance increase.
See also attached Groundwater Quality Assessment Program.

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER MONITORING INFORMATION

SECTION 3: REPORT RESULTS OF THE EVALUATION OF GROUND WATER SURFACE ELEVATIONS, AND A DESCRIPTION OF THE RESPONSE TO THAT EVALUATION, WHERE APPLICABLE OAC 3745-65-94(A)(2)(c)

Well Elevations in MSL by Sampling Date

Well I.D.	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Date:		5-30-84		11-8-84
P1		740.63		736.72
P2		745.65		740.32
P5		743.95		740.87
P6-up		749.55		741.47

ANALYSIS

Upgradient well appears to be reliably upgradient. However, see pg. 14 of attached Groundwater Quality Assessment Program.

SUPPLEMENTARY ANNUAL REPORT FORM: GROUND WATER MONITORING INFORMATION

SECTION 4: REPORT RESULTS OF GROUND WATER QUALITY ASSESSMENT PROGRAM OAC 3745-65-94(B)

See attached report by Ground/Water Technology Inc. dated February, 1985.

1983 DATA

ANNUAL REPORT FORM FOR GROUNDWATER MONITORING INFORMATION

Applicability: This Annual Report Form should be completed by all facilities which are required by OAC 3745-65-90 to do groundwater monitoring.

PART I FACILITY IDENTIFICATION

Facility Name: GMC Fisher Body Div.
Mailing Address: P.O. Box 4025
Elyria, OH 44036

HWFAB Permit # 02-47-0192

Check Applicable Process Codes
- X S04, Storage in Surface Impoundment
- X T02, Treatment in Surface Impoundment
- ___ D80, Disposal in Landfill
- ___ D81, Disposal by Land Application
- ___ D83, Disposal in Surface Impoundment

County: Lorain
Facility Contact: L. P. Randall
Phone Number: (216) 329-1250

Please note that the process codes listed above conform to those found in your Part A application. They should not be used in filling out any other forms accompanying this mailing.

PART II GROUNDWATLR MONITORING INFORMATION

Instructions

All facilities required to do groundwater monitoring should have received a guidance document from the Ohio EPA (dated November 9, 1982) which includes information on performing the statistical tests and evaluating well elevation data. Please refer to this as you fill out the form.

Section 1 List Indicator Parameter values used to establish initial background from all RCRA wells. Report values of upgradient wells first. Upgradient wells should have four replicate measures of each parameter for each sampling date. Please designate wells as upgradient (UP) or downgradient (DN); for example, W2, DN. If more than one measure of each indicator parameter was made from samples taken from downgradient wells, please report these as well. If four complete quarters were obtained in 1982 and are being used as background, this information need not be repeated in this year's Annual Report if it was included last year. Use this section only to record initial background. Semi-annual sampling data should be listed in Section 2. Attach additional pages as needed. Facilities which have not completed four quarters of data should briefly explain why.

Section 2 Report statistical evaluation of indicator parameters for each well, listing the upgradient wells first. Show the data for each parameter and the sampling date. Underneath each set of values, show the mean and variance of the sample, the initial background mean and variance, the t* and t_c, if calculated, and note if the difference is significant at .01. If no semi-annual sampling or statistical evaluations were performed last year, briefly explain why. Attach additional pages as needed.

Section 3 Report groundwater surface elevations in Mean Sea Level for all elevations taken during the year. Identify elevations by well number and location (upgradient, downgradient). Record the dates that elevations were taken. Evaluate these elevations to determine whether the requirements under paragraph (A) of Rule 3745-65-91 of the Administrative Code for locating the monitoring wells continues to be satisfied. Provide a description of the response to that evaluation, where applicable.

Section 4 Summarize groundwater quality assessment efforts, if applicable. If a report has already been sent, briefly relate activities or results and reference the report by name and date.

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS

SEE 1982 ANNUAL REPORT SUBMITTED 2-28-83

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 2 REPORT STATISTICAL EVALUATION OF INDICATOR PARAMETERS (RESULTS OF t-TEST). OAC 3745-65-94(A)(2)(b

SEMI-ANNUAL SAMPLING

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P6-UP	5-13-83	<0.1	<1.0	7.11	1000
		<0.1	<1.0	7.12	1025
		<0.1	<1.0	7.13	1050
		<0.1	<1.0	7.12	1050
Mean		<0.1	<1.0	7.12	1031
Variance		0	0	0.00007	573
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	0.81	-0.35
Significance at .01 (yes or no)		No	No	No	No

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P6-UP	11-23-83	<0.1	<1.0	6.91	1200
		<0.1	<1.0	6.92	1200
		<0.1	<1.0	6.93	1000
		<0.1	<1.0	6.90	1000
Mean		<0.1	<1.0	6.92	1100
Variance		0	0	0.00017	13,333
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	2.99	0.18
Significance at .01 (yes or no)		No	No	Yes	No

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 2 Continued

SEMI-ANNUAL SAMPLING

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P1-DN	5-13-83	<0.1	<1.0	6.91	1600
		<0.1	<1.0	6.91	1650
		<0.1	<1.0	6.93	1575
		<0.1	<1.0	6.92	1600
Mean		<0.1	<1.0	6.92	1606
Variance		0	0	0.00009	990
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	3.09	7.39
Significance at .01 (yes or no)		No	No	Yes	Yes

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P1-DN	11-23-84	<0.1	<1.0	6.91	1500
		<0.1	<1.0	6.91	1550
		<0.1	<1.0	6.96	1555
		<0.1	<1.0	6.93	1600
Mean		<0.1	<1.0	6.93	1551
Variance		0	0	0.00056	1673
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	2.50	5.23
Significance at .01 (yes or no)		No	No	Yes	Yes

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 2 REPORT STATISTICAL EVALUATION OF INDICATOR PARAMETERS (RESULTS OF t-TEST). OAC 3745-65-94(A)(2)(b

SEMI-ANNUAL SAMPLING

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P2-DN	5-13-83	<0.1	<1.0	7.30	1200
		<0.1	<1.0	7.29	1250
		<0.1	<1.0	7.29	1175
		<0.1	<1.0	7.29	1175
Mean		<0.1	<1.0	7.29	1200
Variance		0	0	0.00002	1250
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	1.18	1.78
Significance at .01 (yes or no)		No	No	Yes	Yes

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P2-DN	11-23-83	<0.1	<1.0	6.95	1300
		<0.1	<1.0	7.09	1350
		<0.1	<1.0	7.09	1255
		<0.1	<1.0	7.03	1275
Mean		<0.1	<1.0	7.04	1295
Variance		0	0	0.00440	1683
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	0.74	2.54
Significance at .01 (yes or no)		No	No	No	Yes

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 2 REPORT STATISTICAL EVALUATION OF INDICATOR PARAMETERS (RESULTS OF t-TEST). OAC 3745-65-94(A)(2)(b

SEMI-ANNUAL SAMPLING

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P5-DN	5-13-83	<0.1	<1.0	7.02	1275
		<0.1	<1.0	7.02	1275
		<0.1	<1.0	7.03	1300
		<0.1	<1.0	7.01	1300
Mean		<0.1	<1.0	7.02	1288
Variance		0	0	0.00007	208
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	1.96	5.62
Significance at .01 (yes or no)		No	No	Yes	Yes

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P5-DN	11-23-83	<0.1	<1.0	6.82	1275
		<0.1	<1.0	6.87	1275
		<0.1	<1.0	6.80	1200
		<0.1	<1.0	6.81	1200
Mean		<0.1	<1.0	6.83	1238
Variance		0	0	0.00097	1875
Background Mean		<0.1	<1.0	7.19	1052
Background Variance		0	0	0.013	1956
t^*/t_c		--	--	3.07	1.85
Significance at .01 (yes or no)		No	No	Yes	Yes

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 3 REPORT RESULTS OF THE EVALUATION OF GROUNDWATER SURFACE ELEVATIONS, AND A DESCRIPTION OF THE RESPONSE TO THAT EVALUATION, WHERE APPLICABLE. OAC 3745-65-94(A)(2)(c)

Well Elevations in MSL by Sampling Date

	DATES	
Well I.D.	5-13-83	11-23-83
P6-UP	749.2 Ft.	748.6 Ft.
P1-DN	737.5 Ft.	738.6 Ft.
P2-DN	745.4 Ft.	745.0 Ft.
P5-DN	743.9 Ft.	743.9 Ft.

REPORT RESULTS OF GROUNDWATER ELEVATION ANALYSIS IN THE SPACE PROVIDED BELOW.

Well P6 is reliably upgradient and sample volume is adequate. Recharge rate of Well P1 has decreased somewhat.

ANNUAL REPORT FORM FOR GROUNDWATER
MONITORING INFORMATION

SECTION 4 REPORT RESULTS OF GROUNDWATER QUALITY ASSESSMENT PROGRAM.
OAC 3745-65-94(B)

Source of pH and conductivity changes not identified. Analysis of Groundwater for metal constituents of Wastewater Treatment Sludge shows all wells have no detectable copper, nickel, chromium and iron. Tests for zinc are inconsistent with t* analysis.

1982 DATA

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

Applicability: This Supplementary Annual Report Form should be completed by all facilities which are required by OAC 3745-65-90 to do groundwater monitoring.

PART I FACILITY IDENTIFICATION

Facility Name: GMC Fisher Body Div.
Mailing Address: P.O. Box 4025
Elyria, OH 44036

HWFAB Permit # 02- 47- 0192

Check Applicable Process Codes
X S04, Storage in Surface Impoundment
X T02, Treatment in Surface Impoundment
___ D80, Disposal in Landfill
___ D81, Disposal by Land Application
___ D83, Disposal in Surface Impoundment

County: Lorain
Facility Contact: L. P. Randall
Phone Number: (216)329-1250

Please note that the process codes listed above conform to those found in your Part A application, and not to the annual report form which you will receive in a separate mailing.

PART II GROUNDWATER MONITORING INFORMATION

Instructions

All facilities required to do groundwater monitoring should have received a guidance document from the Ohio EPA (dated November 9, 1982) which includes information on performing the statistical tests and evaluating well elevation data. Please refer to this as you fill out the form.

Section 1 Include Indicator Parameter values from all RCRA wells. Report values of upgradient well(s) first. Upgradient wells should have four replicate measures of each parameter for each sampling date. Please designate wells as upgradient (UP) or downgradient (DN); for example, W2, DN. If more than one measure of each indicator parameter was made from samples taken from downgradient wells, please report these as well. Attach additional pages as needed. Facilities which have not completed 4 quarters of data should briefly explain why.

Section 2 Only facilities which have completed 4 quarters of groundwater monitoring data, plus the first semi-annual sampling of indicator parameters, need report anything in this section. Report upgradient well(s) first. Put "NOT APPLICABLE" under the section heading if appropriate.

Section 3 Report well elevations in Mean Sea Level. Identify well elevations by well number and location (upgradient, downgradient). Record the dates that elevations were taken under each quarterly heading. Please attach well logs to this form.

Section 4 Summarize efforts to determine rate and extent of migration of hazardous waste or hazardous waste constituents in the groundwater, and the concentrations of the hazardous waste or hazardous waste constituents in the groundwater. Report results of analysis. Put "NOT APPLICABLE" under the section heading if appropriate.

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P1, DN	01-26-82	< .1	< 1	7.05	1600
		< .1	< 1	7.05	1550
		< .1	< 1	7.05	1600
		< .1	< 1	7.10	1625
	05-05-82	< .1	< 1	6.71	1450
		< .1	< 1	6.70	1450
		< .1	< 1	6.75	1400
		< .1	< 1	6.71	1400
	08-24-82	< .1	< 1	6.85	1600
		< .1	< 1	6.88	1625
		< .1	< 1	6.84	1625
		< .1	< 1	6.92	1600
	11-16-82	< .1	< 1	7.21	1650
		< .1	< 1	7.24	1575
		< .1	< 1	7.22	1575
		< .1	< 1	7.20	1625

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P2, DN	01-25-82	<.1	< 1	7.30	1150
		<.1	< 1	7.30	1175
		<.1	< 1	7.25	1150
		<.1	< 1	7.30	1175
	05-05-82	<.1	< 1	6.75	1200
		<.1	< 1	6.75	1150
		<.1	< 1	6.77	1150
		<.1	< 1	6.75	1150
	08-24-82	<.1	< 1	6.92	1425
		<.1	< 1	6.95	1400
		<.1	< 1	7.01	1375
		<.1	< 1	6.94	1400
	11-16-82	<.1	< 1	7.21	1100
		<.1	< 1	7.21	1150
		<.1	< 1	7.20	1150
		<.1	< 1	7.15	1150

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P5, DN	01-25-82	< .1	< 1	7.25	1350
		< .1	< 1	7.35	1300
		< .1	< 1	7.40	1375
		< .1	< 1	7.35	1300
	05-05-82	<.1	< 1	7.10	1375
		<.1	< 1	7.14	1375
		<.1	< 1	7.10	1400
		<.1	< 1	7.10	1350
	08-24-82	<.1	< 1	6.96	1525
		<.1	< 1	7.02	1500
		<.1	< 1	7.01	1525
		<.1	< 1	6.98	1500
	11-16-82	<.1	< 1	7.01	1325
		<.1	< 1	7.01	1300
		<.1	< 1	7.04	1350
		<.1	< 1	7.01	1325

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 1 REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR. OAC 3745-65-94(A)(2)(b)

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS
P6, UP	01-26-82	<.1	< 1	7.40	1050
		<.1	< 1	7.25	1025
		<.1	< 1	7.40	1075
		<.1	< 1	7.35	1100
	05-05-82	<.1	< 1	7.20	950
		<.1	< 1	7.15	1025
		<.1	< 1	7.19	1025
		<.1	< 1	7.20	1050
	08-24-82	<.1	< 1	7.03	1075
		<.1	< 1	7.05	1100
		<.1	< 1	7.10	1125
		<.1	< 1	7.07	1100
	11-16-82	<.1	< 1	7.15	1025
		<.1	< 1	7.15	1000
		<.1	< 1	7.16	1050
		<.1	< 1	7.14	1050

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER
MONITORING INFORMATION

SECTION 2 REPORT STATISTICAL EVALUATION OF INDICATOR PARAMETERS (RESULTS OF t-TEST)
OAC 3745-65-94(A)(2)(b)

Not Applicable FIRST SEMI-ANNUAL SAMPLING

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS

Mean
Variance
Background Mean
t-Value
Significance at .01
Yes (give value) or No

11 ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS

Mean
Variance
Background Mean
t-Value
Significance at .01
Yes (give value) or No

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 2 Continued

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS

Mean
Variance
Background Mean
t-Value
Significance at .01
Yes (give value) or No

Well ID	Date Sampled	TOH (mg/L)	TOC (mg/L)	pH S.U.	Specific Conductance uMHOS

Mean
Variance
Background Mean
t-Value
Significance at .01
Yes (give value) or No

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER
MONITORING INFORMATION

.CTION 3 REPORT RESULTS OF THE EVALUATION OF GROUNDWATER SURFACE ELEVATIONS, AND A DESCRIPTION OF THE RESPONSE TO THAT EVALUATION, WHERE APPLICABLE
OAC 3745-65-94(A)(2)(c)

Well Elevations in MSL by Sampling Date

Well I.D. / Dates	1st Quarter 1-25 & 26-82	2nd Quarter 5-5-82	3rd Quarter 8-24-82	4th Quarter 11-16-82
P1, DN	738.8 Ft.	741.3 Ft.	743.0 Ft.	736.2 Ft.
P2, DN	730.9	731.3	733.5	744.3
P5, DN	730.8	732.3	733.7	741.5
P6, UP	743.4	743.6	748.0	745.9

ANALYSIS

P6 Well appears to be reliably upgradient. Sample volume is adequate.

SOIL BORING LOGS

Boring Number	Interval (ft)	Description
P-1	0-3	Gray brown silty clay
	3-10	Light brown silty sand and gravel
	10-12	Weathered redish brown sandstone
	12-19	Very hard find grained greenish gray sandstone, very thin shale interbeds
	19-29	Gray shale
P-2	0-8	Brown silty clay trace sand
	8-11	Gray silty clay trace sand
	11-13.5	Gray shale sandy interbeds
	13.5-22	Sandstone, medium fine gravel, thin shale interbeds
	22-23	Gray shale, some silt
P-5	0-3	Brown silty clay, trace sand
	8-23	Weathered light gray sandstone
	23-29	Light gray sandstone, medium fine grain
P-6	0-10	Brown silty clay, trace sand
	10-15	Weathered light gray sandstone
	15-18.5	Weathered red shale

FILE NO. _____
PAGE 1 OF 2

CDM

PIEZOMETER INSTALLATION SHEET

PROJECT NAME Fisher Body (GM) FIELD ENG/GEO Ross Overby DATE 5/14/81
PROJECT NO. 1211 CHECKED BY Ross Overby DATE 5/14/81
BORING NO. P-1 COORDINATES _____
PIEZOMETER NO. P-1 DATE OF INSTALLATION 5/14/81

BOREHOLE DRILLING

DRILLING METHOD Auger/Rotary
DRILLING FLUID(S) USED.
FLUID Water FROM _____ TO _____
FLUID _____ FROM _____ TO _____

TYPE OF BIT Roller/ Tricone
CASING SIZE(S) USED: None
SIZE _____ FROM _____ TO _____
SIZE _____ FROM _____ TO _____

PIEZOMETER DESCRIPTION

TYPE PVC
DIAMETER OF PERFORATED SECTION 2" ID
PERFORATION TYPE:
SLOTS ☒ HOLES ☐ SCREEN ☐
AVERAGE SIZE OF PERFORATIONS _____
TOTAL PERFORATED AREA _____

RISER PIPE MATERIAL PVC
RISER PIPE DIAMETERS 2" ID
O.D. _____ I.D. _____
LENGTH OF PIPE SECTIONS _____
JOINING METHOD GLUE ASTM 2564

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH 3'
PROTECTIVE PIPE O.D _____

OTHER PROTECTION _____

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE (ft)		ELEVATION (ft)	
TOP OF RISER PIPE	1.1		105.9	
GROUND SURFACE	0.0			
BOTTOM OF PROTECTIVE PIPE				
BOREHOLE FILL MATERIALS				
GROUT/SLURRY	TOP 0	BOTTOM 13	TOP 104.8	BOTTOM 91.8
BENTONITE	TOP 0	BOTTOM 13	TOP 104.8	BOTTOM 91.8
SAND	TOP 13	BOTTOM 14	TOP 91.8	BOTTOM 90.8
GRAVEL	TOP 14	BOTTOM 20	TOP 90.8	BOTTOM 84.8
PERFORATED SECTION	TOP 15	BOTTOM 20	TOP 89.8	BOTTOM 84.8
PIEZOMETER TIP	20		84.8	
BOTTOM OF BOREHOLE				
GWL AFTER INSTALLATION	10.5		95.4	

WAS THE HOLE FLUSHED BEFORE INSTALLATION? YES ☒ NO ☐
WAS THE PIEZOMETER FLUSHED AFTER INSTALLATION? YES ☒ NO ☐
WAS A SENSITIVITY TEST PERFORMED ON THE PIEZOMETER? YES ☐ NO ☒

REMARKS _____

FILE NO. _____
PAGE 1 OF 2

CDM

PIEZOMETER INSTALLATION SHEET

PROJECT NAME Fisher Body (GM) FIELD ENG/GEO Ross Overby DATE 5/15/81
PROJECT NO. 1211 CHECKED BY Ross Overby DATE 5/15/81
BORING NO. P-2 COORDINATES _____
PIEZOMETER NO. P-2 DATE OF INSTALLATION 5/15/81

BOREHOLE DRILLING

DRILLING METHOD Rotary/Auger
DRILLING FLUID(S) USED. Water
FLUID _____ FROM _____ TO _____
FLUID _____ FROM _____ TO _____

TYPE OF BIT Roller/Tricone
CASING SIZE(S) USED:
SIZE _____ FROM _____ TO _____
SIZE _____ FROM _____ TO _____

PIEZOMETER DESCRIPTION

TYPE PVC
DIAMETER OF PERFORATED SECTION 2" ID
PERFORATION TYPE:
SLOTS ☒ HOLES ☐ SCREEN ☐
AVERAGE SIZE OF PERFORATIONS _____
TOTAL PERFORATED AREA _____

RISER PIPE MATERIAL PVC
RISER PIPE DIAMETERS 2" ID
O.D. _____ I.D. _____
LENGTH OF PIPE SECTIONS _____
JOINING METHOD Glue ASTM 2564

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH 3'
PROTECTIVE PIPE O.D _____

OTHER PROTECTION _____

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE (ft)		ELEVATION (ft)	
TOP OF RISER PIPE	1.8		105.0	
GROUND SURFACE	0.0			
BOTTOM OF PROTECTIVE PIPE				
BOREHOLE FILL MATERIALS				
GROUT/SLURRY	TOP 0	BOTTOM 14	TOP 103.2	BOTTOM 89.2
BENTONITE	TOP 0	BOTTOM 14	TOP 103.2	BOTTOM 89.2
SAND	TOP 14	BOTTOM 15	TOP 89.2	BOTTOM 88.2
GRAVEL	TOP 15	BOTTOM 22	TOP 88.2	BOTTOM 81.2
PERFORATED SECTION	TOP 17	BOTTOM 22	TOP 86.2	BOTTOM 81.2
PIEZOMETER TIP	22		81.2	
BOTTOM OF BOREHOLE				
GWL AFTER INSTALLATION	4.0		101.0	

WAS THE HOLE FLUSHED BEFORE INSTALLATION? YES ☒ NO ☐
WAS THE PIEZOMETER FLUSHED AFTER INSTALLATION? YES ☒ NO ☐
WAS A SENSITIVITY TEST PERFORMED ON THE PIEZOMETER? YES ☐ NO ☒

REMARKS _____

FILE NO. _____
PAGE 1 OF 2

CDM

PIEZOMETER INSTALLATION SHEET

PROJECT NAME Fisher Body (GM) FIELD ENG/GEO Ross Overby DATE 7-28-81
PROJECT NO. 1211 CHECKED BY Ross Overby DATE 7-28-81
BORING NO. P-5 COORDINATES _____
PIEZOMETER NO. P-5 DATE OF INSTALLATION 7-28-81

BOREHOLE DRILLING

DRILLING METHOD Auger/Rotary
DRILLING FLUID(S) USED.
FLUID Water FROM _____ TO _____
FLUID _____ FROM _____ TO _____

TYPE OF BIT Roller/Tricone
CASING SIZE(S) USED:
SIZE _____ FROM _____ TO _____
SIZE _____ FROM _____ TO _____

PIEZOMETER DESCRIPTION

TYPE PVC
DIAMETER OF PERFORATED SECTION 4" OD
PERFORATION TYPE:
SLOTS [X] HOLES [ ] SCREEN [ ]
AVERAGE SIZE OF PERFORATIONS _____
TOTAL PERFORATED AREA _____

RISER PIPE MATERIAL PVC
RISER PIPE DIAMETERS 4" OD
O.D. _____ I.D. _____
LENGTH OF PIPE SECTIONS _____
JOINING METHOD GLUE ASTM 2564

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH 3'
PROTECTIVE PIPE O.D _____

OTHER PROTECTION _____

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE (ft)		ELEVATION ( )	
TOP OF RISER PIPE	1.4		108.3	
GROUND SURFACE	0.0			
BOTTOM OF PROTECTIVE PIPE				
BOREHOLE FILL MATERIALS				
GROUT/SLURRY	TOP 0	BOTTOM 18	TOP 106.9	BOTTOM 90.3
BENTONITE	TOP 18	BOTTOM 21	TOP 90.3	BOTTOM 87.3
SAND	TOP 21	BOTTOM 23	TOP 87.3	BOTTOM 85.3
GRAVEL	TOP 23	BOTTOM 29	TOP 85.3	BOTTOM 79.3
PERFORATED SECTION	TOP 24	BOTTOM 29	TOP 84.3	BOTTOM 79.3
PIEZOMETER TIP	29'		79.3	
BOTTOM OF BOREHOLE				
GWL AFTER INSTALLATION	9.2'		99.1	

WAS THE HOLE FLUSHED BEFORE INSTALLATION? YES [X] NO [ ]
WAS THE PIEZOMETER FLUSHED AFTER INSTALLATION? YES [X] NO [ ]
WAS A SENSITIVITY TEST PERFORMED ON THE PIEZOMETER? YES [ ] NO [X]

REMARKS _____

FILE NO. _____
PAGE 1 OF 2

CDM

PIEZOMETER INSTALLATION SHEET

PROJECT NAME Fisher Body (GM) FIELD ENG/GEO Ross Overby DATE 7-29-81
PROJECT NO. 1211 CHECKED BY Ross Overby DATE 7-29-81
BORING NO. P-6 COORDINATES _____
PIEZOMETER NO. P-6 DATE OF INSTALLATION 7-29-81

BOREHOLE DRILLING

DRILLING METHOD Auger
DRILLING FLUID(S) USED.
FLUID _____ FROM _____ TO _____
FLUID _____ FROM _____ TO _____

TYPE OF BIT Auger
CASING SIZE(S) USED:
SIZE _____ FROM _____ TO _____
SIZE _____ FROM _____ TO _____

PIEZOMETER DESCRIPTION

TYPE PVC
DIAMETER OF PERFORATED SECTION 4" OD
PERFORATION TYPE:
SLOTS ☒ HOLES ☐ SCREEN ☐
AVERAGE SIZE OF PERFORATIONS _____
TOTAL PERFORATED AREA _____

RISER PIPE MATERIAL PVC
RISER PIPE DIAMETERS 4" OD
O.D. _____ I.D. _____
LENGTH OF PIPE SECTIONS _____
JOINING METHOD GLUE ASTM 2564

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH 3'
PROTECTIVE PIPE O.D. _____

OTHER PROTECTION _____

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE (ft)		ELEVATION (ft)	
TOP OF RISER PIPE	1.5		109.9	
GROUND SURFACE	0.0			
BOTTOM OF PROTECTIVE PIPE				
BOREHOLE FILL MATERIALS				
GROUT/SLURRY	TOP 0	BOTTOM 7	TOP 109.9	BOTTOM 102.9
BENTONITE	TOP 7	BOTTOM 8	TOP 102.9	BOTTOM 101.9
SAND	TOP 8	BOTTOM 10	TOP 101.9	BOTTOM 99.9
GRAVEL	TOP 10	BOTTOM 15	TOP 99.9	BOTTOM 94.9
PERFORATED SECTION	TOP 10	BOTTOM 15	TOP 99.9	BOTTOM 94.9
PIEZOMETER TIP	15		94.9	
BOTTOM OF BOREHOLE				
GWL AFTER INSTALLATION	9.0		100.9	

WAS THE HOLE FLUSHED BEFORE INSTALLATION? YES ☐ NO ☒
WAS THE PIEZOMETER FLUSHED AFTER INSTALLATION? YES ☐ NO ☒
WAS A SENSITIVITY TEST PERFORMED ON THE PIEZOMETER? YES ☐ NO ☒

REMARKS _____

SUPPLEMENTARY ANNUAL REPORT FORM: GROUNDWATER MONITORING INFORMATION

SECTION 4 REPORT RESULTS OF GROUNDWATER QUALITY ASSESSMENT PROGRAM. OAC 3745-65-94(B)

Not Applicable.

CDM

General Motors Corporation
Fisher Body Division
Elyria, Ohio

Report Containing Geological/Hydrological Investigations, Groundwater Monitoring Program, and Outline of Groundwater Assessment Plan

September 1981

Camp Dresser & McKee